From the creators of retro GAMER

Videogames Hardware Handbook

1977 to 1999
Consoles ▫ Computers ▫ Handhelds

The Games Machine Collector's Manual

NINTENDO 64

AMIGA

NES

MEGA DRIVE

PC ENGINE

DREAMCAST

SNES

SATURN

ATARI 2600

GAME GEAR

ZX SPECTRUM

GAME BOY

JAGUAR

COMMODORE 64

256 PAGES OF HISTORY'S GREATEST VIDEOGAME HARDWARE

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Thank you for supporting Imagine Publishing – an independent specialist magazine publisher where quality, innovation and excellence are paramount.

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William Gibbons, 26 Planetary Road, Willenhall, West Midlands, WV13 3XT

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Videogames Hardware Handbook © 2009 Imagine Publishing Ltd

ISBN 978-1-906078-44-7

IMAGINE PUBLISHING

AMSTRAD | COMMODORE | SEGA | NINTENDO | ATARI | SINCLAIR | NEO GEO | SONY | COIN-OP | MOBILE

It's here! Plug in, switch on and load up!

Videogames Hardware Handbook

The Games Machine Collector's Manual

With retro gaming now more popular than ever, it's never been easier to play your favourite classic game. Online services like Virtual Console and Good Old Games grant us access to a wealth of releases that you once had to scour car boot sales to find, while developers like Square Enix seem intent on remaking all their greatest hits on modern consoles. If you're anything like me, though, you'll agree that there's nothing quite like playing an old game on the hardware it was intended for, which is where the book you see before you will come in handy. Charting the history of videogames from 1977 to 1999, we inspect many of the greatest games machines ever made, retelling their fascinating behind-the-scenes stories and detailing the best games you should look out for once you've bought one. And trust me, once you've read about the wonderful hardware within, you'll definitely want to buy at least one.

Enjoy.

Videogames Hardware Handbook

The Games Machine Collector's Manual

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Year Released: 1977

Original Price: £169

Buy it now for: £30+

Associated Magazines: TV Gamer

Why the Atari 2600 was great... Even today the Atari 2600 is a thing of beauty. Built to last and featuring that famous wooden veneer, few things in life could give us as much pleasure as a day spent in front of the TV playing *Space Invaders* or *Combat*. It may have all ended in tears for Atari, but the 2600 remains one of the defining aspects of its legacy.

ATARI 2600

CHANCES ARE THAT YOU OWNED THE ATARI 2600 – THE BEHEMOTH OF THE GAMING INDUSTRY FROM THE GENIUS THAT IS NOLAN BUSHNELL AND A LEGEND IN ITS OWN RIGHT. THE 2600 WAS TO BECOME AN OVERNIGHT SENSATION, AND FORGED MILLIONS OF MINDS TO THE WONDROUS BEAUTY OF VIDEOGAMES AS DETAILED IN THIS SPECIAL RETROSPECTIVE...

To this day, the Atari 2600 VCS (video computer system) is a gaming phenomenon, which, in the late Seventies, was a multimillion-dollar industry with over 30 million consoles sold worldwide and hundreds of millions of cartridges produced over three decades. Quite literally, if it wasn't for the Atari 2600 that made home videogaming for the masses on an affordable budget possible, then today's videogaming industry – which is more profitable than the movie and music industry combined – might have been a different story. Whereas the 2600 was revolutionary to the videogaming world in terms of its world dominance and game catalogue, it was also built to last – a gaming equivalent of a Swedish log cabin; early models resembled a mini-Panzerkampfwagen with wood panelling in the style of a Station Wagon powerhouse. One website, that shall remain anonymous, also provides tips on how to convert the indestructible joystick into a vibrating sex toy to appease the girlfriend; the quality of build is something that German engineers would have been envious of – "vor sprung durch technique Atari."

In 1972, Bushnell, Ted Dabney and Al Alcorn set up shop with Atari Computers and the rest is, as they say, history. Three years later, Atari released *Home Pong* and it was a huge success, thanks to Sears' marketing campaign and the genius of Bushnell, who was to become the Ray Winstone of the gaming world. Influenced by the Channel F console – the world's first electronic system to use a microchip – Atari followed suit in 1977 with the 2600 VCS that was complemented by nine cartridge games, including *Outlaw*, *Space War* and *Breakout*. The 2600 was to be gaming gold and, legend has it, that demand was so great over the

Origins

The name of 'Atari' originates from one of the world's oldest board games, Go, which Nolan Bushnell was known to enjoy playing and denotes the following: "A group of stones is in Atari if it has only one liberty left." As for the Atari symbol, it was designed by George Opperman in the early Seventies. By all accounts, *Pong* was very popular and the large letter 'A' represented two opposing videogame players with the centre of the *Pong* court in the middle. Got that? As for classic 2600 games that we still love playing, you really can't go wrong with *Combat*, *Demon Attack*, *Adventure*, *River Raid*, *Solans*, *Pitfall!*, *Yars Revenge*, *Kaboom*, *Frogger*, *Haunted House* and *H.E.R.O*. Also, the Intellivision was not the only system to feature voice synthesis as the 2600 also had *Quadron*, *Open Sesame* and *Berzerk* – the latter being an enhanced but hacked version. Bless...

This is *Go*. It's loved the world over thanks to its challenging and deep gameplay and is held in particularly high regard in Japan.

» *Grand Prix* was a belter of a driving game and still plays well today, even when compared to next-gen visual eyeball candy driving sims!

» Indestructible, built to last and tough to kill. The 2600's joystick took a hammering and came back for more – as well as being a girlfriend's favourite 'toy'...

» The original console of the Atari 2600 released in 1977. With wooden panelling from a Swedish log cabin and immune to damage, it was alleged that the basic design was influenced from German weapon technology from 1945...

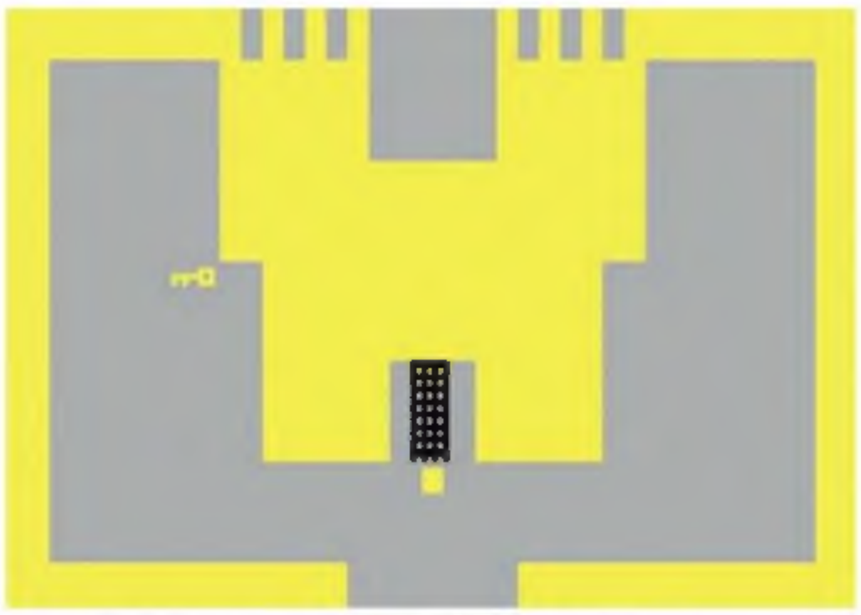
» In the early Eighties, the very sight of the 2600 was to be every schoolboy's wet dream, and Santa soon had his elves making millions of them.

» One of the classic retro 2D action/adventure games: Activision's *Pitfall*. Quite why brick walls exists in secret underground chambers in a forbidden jungle is anyone's guess...

Christmas festivities that Atari executives helped man the production lines so that the public's hunger for the video sensation was satisfied.

Overnight, the Atari 2600 was raking in millions of dollars, and mainstream corporate companies paid close attention to the new form of home entertainment. In 1978, Warner Communications bought Atari and Bushnell left the company in search of other challenges by buying Pizza Time Theatre. A year later, and with more financial backing to boost development of software and marketing, the 2600 was graced with a further 12 games, but stiff competition in the shape of the Magnavox Odyssey 2 and the Mattel Intellivision – the latter being the world's first 16-bit console – threatened Atari's monopoly. The Intellivision was the strongest contender to the Atari by boasting more graphics power, a highly inventive gaming pad – which, some say, has only been surpassed by Nintendo's Wii – and innovative peripherals such as a keyboard and voice synthesis module. The Intellivision may have stomped in the clay footprint set by Atari, but in a short period of time, Mattel's machine had shifted over 4 million units: something had to be done before the 2600 would be superseded by the opposition. The answer came in 1980 with a gaming smash hit from Japan: *Space Invaders*. The arcade conversion to the 2600 proved to be a monstrous success, with scores of people buying the console just so they could play the game, and more were converted to the Atari cause when *Adventure* was released shortly afterwards. And in gaming history, *Asteroids* and *Lunar Lander* were the first two videogames to be registered in the US copyright office. The face of videogaming was changing rapidly – everyone wanted a piece of the action and things were going to get real ugly.

Four disgruntled Atari employees left the company to form Activision – a third-party outfit to drag from the coat tails of the 2600 – and released their own games in 1980: *Boxing*, *Checkers*, *Fishing Derby* and *Dragster*. Arguably, Activision's titles were better in quality than the ones that the 2600 had to offer, and Atari was not pleased that other parties were taking a slice of the pie and promptly sued. And lost. The giant cash cow that was Atari was forced to resign to the fact that other companies could release their own titles that were compatible with the 2600, and Activision made over $70 million in one year alone. 1981 was to be a gaming duel between the Atari and the Intellivision – in playgrounds across America, schoolboys would bicker over which system was



Many retro gamers lost hours of their lives and girlfriends to the Atari 2600's *Adventure*: one of the very first RPGs that moulded and influenced the genre.

superior to the other, but Atari finally won in a battle of attrition. Like the confrontation between VHS and Betamax in the early Eighties, Atari had the edge due to market dominance.

To beat the stranglehold of the 2600 in the marketplace, Coleco believed that a graphically advanced machine would beat the ageing Atari and released the Colecovision in 1982. In response, Atari launched the 5200 – a more powerful machine on terms with Coleco's – and lowered the cost of the 2600 by a hundred bucks. Once again, Atari ruled the roost, and its dominance was assured as the Colecovision went the same way as the Intellivision and Arcadia released the Supercharger: a device that played games on an audio cassette and allowed multi-loads. A slew of third-party companies gave the Atari a vote of confidence and joined the fray as CBS, 20th Century Fox, Tigervision and many more – even X-rated games were available for the more mature gamer via Mystique – so long as Atari was presented with a percentage of the profits. Sales were strong, despite the 2600's age, and more games were released such as *Pac-Man* and *ET*, which were critical and commercial disasters. An urban myth states that the movie studio behind *ET* gave Atari less than two months to plan, develop and distribute the 2600 game in time to hit the US theatrical release. Only recently have the software developer and movie studio not been at loggerheads when it comes to film game adaptations, and, predictably, with such unrealistic delivery deadlines, *ET* was rushed and proved to be an satisfactory videogame: sales were so low that rumours surfaced of a million cartridge units being buried in a landfill in the Nevada desert.

It was the beginning of the end; there were too many games to meet demand, third-party companies began to fold, and the gaming crash was in full swing. Desperate times demand desperate measures, and to compensate for the severe lack of sales, Atari reduced the 2600 to $40 in 1984 and had announced the release of the 7800 and a more sophisticated 2600 with better graphics. This suggested that the end was nigh for videogames, and that the fad had passed, Warner Communications sold its home videogame division of Atari to Jack Tramiel, who believed that home computers would replace consoles. Tramiel snuffed out all new Atari releases and put an emphasis on the Commodore 64.

The Atari 2600 Jr – the company's attempt to flog an ageing machine at a low cost to the masses

Financial experts predicted that the videogame industry was kaput, the bubble had burst and that the future for home entertainment relied on home computers, as a new gaming conflict commenced between the Sinclair Spectrum, Commodore 64, Dragon 32 and others. However, in 1986, Nintendo surprised everyone with the release of the NES console, which was a US sales blitzkrieg – every kid wanted one! Sensing that there was more life in the old dog, Atari then sold the newly designed 2600 as the Atari 2600 Jr for less than 50 dollars, as well as the 7800 that had been gathering dust in storage for over a year. Videogames were, once again, the big thing, and in 1987 Atari released *Jr Pac-Man* and sub-licensed a number of established games from other companies, such as the wonderful *Donkey Kong* – a title that allowed the 2600 to print money. As 1987 had passed, Atari executives realised that the 2600 was coming to the end of its natural shelf life: an astonishing achievement for a gaming machine over ten years old as well as having to compete with more advanced systems. Nolan Bushnell was rehired by Atari, which then manufactured a small number of titles, including *Secret Quest*, as a final swan-song to a console classic and as a way of squeezing the last fistful of cents from the machine. By 1989, the production lines for the 2600 finally ground to a halt as the final units were shipped across the US, although foreign sales and distribution continued for a short period of time. It was time for the 2600 to throw in the towel, retire and look back at what it had achieved through gaming history.

If it wasn't for the 2600 and its impact on the videogame industry, what we take for granted today might have had been very different, especially if Jack Tramiel had his way. The 2600 was a high-quality machine with an incredible range of games to choose from, and all genres were catered for – from educational titles to arcade, puzzle and strategy – and available in spades. And the retro gaming rebellion has sparked new life into the 2600 as hobbyists collect and sell the console and cartridges all over the world as well as Jakks Pacific's fabulous TV Games Atari joystick that features a selection of great games such as *Missile Command* and *Scramble* – and how good is that? And besides, with a modern-day game that comes complete with a manual the size of the Yellow Pages and a learning curve that will consume the best part of your life, you really can't go wrong with the Atari's pick up and play nature.

Close but no cigar

Sadly, a number of titles for the 2600 never saw the light of day and were to become a retro gaming myth. The classic hardcore skin flick, *Debbie Does Dallas*, was announced in 1982 by American Multiple Systems but was canned before completion; one can only wonder what the gameplay would have been like but it might have been similar to the *Daley Thompson Decathlon* joystick 'waggle'... The cult comedy movie *Airplane!* was also canned as was *B-52 Bomber*, which might have been given the opportunity to carpet-bomb Iraq and Afghanistan. One game that definitely deserved to have been released was *Attack Of The Baby Seals* – quite possibly a schlock B-movie horror title but one that sounds rather wondrous.

Unsurprisingly, movie tie-ins were popular from *Jaws*, *Butch Cassidy And The Sundance Kid*, *MASH*, *Magnum PI* and *Porky's* – the latter an amazing u-turn in gameplay where the movie's narrative was altered so that sex-crazed teenagers were changed to pigs – nice.

We could easily imagine a game based on the hit comedy *Airplane!*, but *Debbie Does Dallas*? The mind boggles...

ATARI 2600

PERFECT TEN GAMES

The Atari 2600, or VCS as it was more commonly known, has a huge catalogue of games, and we've had a hard time nailing down just ten of our favourites. Before you write in, though, any top ten is going to be entirely subjective and, of course, open to violent debate, and that's what **Retro Gamer** is all about: like-minded gamers indulging in sheer nostalgia. Bring it on

01

SPACE INVADERS

- **RELEASED:** 1980
- **PUBLISHED BY:** ATARI
- **CREATED BY:** RICK MAURERER
- **BY THE SAME DEVELOPER:** MAZE CRAZE

01 Don't be fooled by the ancient-looking visuals. *Space Invaders* was one of the earliest 'killer apps' and proved a massive hit when it was first released.

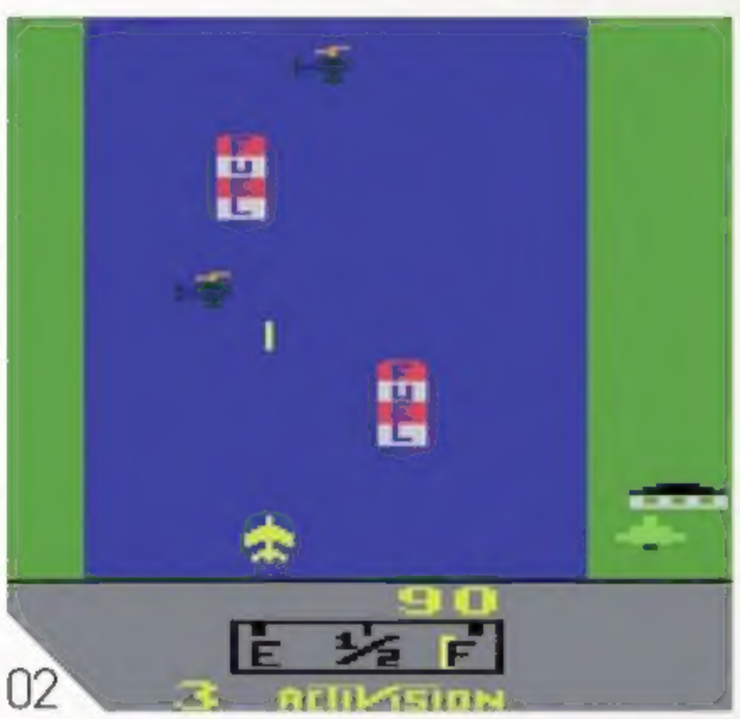
It may not be arcade perfect – there were only 36 on-screen invaders compared to the arcade's 55 – but *Space Invaders* had plenty of different options. 112, in fact, which was a staggering number at the time and greatly enhanced what was already a great game. Moving shields, zig-zagging bombs, invisible invaders, two players on-screen at once, guided missiles… The list was virtually endless. If you don't have a copy of *Space Invaders* in your collection then you're doing your VCS a huge disservice.

RIVER RAID

- **RELEASED:** 1982
- **PUBLISHED BY:** ACTIVISION
- **CREATED BY:** CAROL SHAW
- **BY THE SAME DEVELOPER:** 3D TIC-TAC-TOE, CHECKERS, POLO

02 *River Raid* was a huge departure for Carol Shaw, especially when you consider that the majority of her previous VCS games had been based on simple parlour games.

The never-ending river you flew up was filled with a variety of dangerous hazards, and the further you made it up the river, the more dangerous the challenge became. We didn't mind, though, as it looked amazing. Not only were you up against dangerous opponents, you also had a limited amount of fuel to worry about, which became scarcer and scarcer as the game progressed. A classic shooter no collector should be without.



02

BERSERK

- **RELEASED:** 1982
- **PUBLISHED BY:** ATARI
- **CREATED BY:** DAN HITCHINS
- **BY THE SAME DEVELOPER:** SWORDQUEST: EARTHWORLD

03 Like many 2600 arcade conversions, *Berzerk* wasn't perfect. For starters, the voice synthesis from the arcade game was nowhere to be seen – although this was later added in an enhanced version – and the graphics gave the game a more claustrophobic feel than its arcade parent and the enemies couldn't fire diagonally, thus making it easier to play. Despite these niggles, it remains a great conversion, mainly because of its simplistic gameplay and solid controls. Negotiating the mazes took steady nerves and a fair amount of patience and strategy. If you're a fan of shooters, track this down as quickly as possible.

ADVENTURE

- **RELEASED:** 1980
- **PUBLISHED BY:** ATARI
- **CREATED BY:** WARREN ROBINETT
- **BY THE SAME DEVELOPER:** MAZE, SLOT RACER

04 *Adventure* is perhaps one of the crudest-looking games on the 2600. Your lead character was nothing more than a simple block, many of the rooms were sparse even by VCS standards, and the less said about the dragons the better…

Nevertheless, it was one of the most involving titles available for Atari's first console. With a simple premise – return a stolen chalice to a castle – and some great gameplay mechanics – several items can be picked up along the way to help your progress – *Adventure* remains a landmark title and an essential addition to your VCS library.

MS PAC-MAN

- **RELEASED:** 1982
- **PUBLISHED BY:** ATARI
- **CREATED BY:** MIKE HOROWITZ, JOSH LITTLEFIELD
- **BY THE SAME DEVELOPER:** NA

05 Even the most avid 2600 owner will tell you that Atari's original *Pac-Man* was an appalling conversion. The game had obviously been rushed, and disgruntled gamers poured scorn upon Atari. Atari had obviously been listening, though, as *Ms Pac-Man* was a huge improvement. While the visuals weren't arcade perfect, they captured the spirit of the original, and this time around the main character actually looked like her arcade counterpart. Add in spot-on controls, faithful sound effects and near perfect gameplay that perfectly mimicked the arcade game and *Ms Pac-Man* success was assured.

03

04

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06

07

08

H.E.R.O.

- **RELEASED:** [illegible]
- **PUBLISHED BY:** ACTIVISION
- **CREATED BY:** JOHN VAN RYZIN
- **BY THE SAME DEVELOPER:** ENDURO, ENDURO, CROSSBOW, ENDURO

06 **Activision certainly churned out some quality titles for the Atari 2600, and H.E.R.O. was no exception.** Taking control of Roderick Hero, the aim was to use your propeller backpack to venture into the 20 dangerous mines and rescue all the miners. *H.E.R.O.* was typical of many Activision titles in that it was very polished and featured some solid gameplay. While there was no actual music to speak of, there are a wealth of impressive effects that really added to the game's atmosphere, and the ever-decreasing power in Roderick's jetpack ensured that every game remained a challenge. Great stuff.

DEFENDER II

- **RELEASED:** [illegible]
- **PUBLISHED BY:** ATARI
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

07 ***Defender II* (or *Stargate* as it is also known) is another great arcade conversion for the 2600 and a damn fine shooter to boot.** Unlike the original *Defender* which was a pretty poor conversion, its sequel got everything correct and featured visuals that were extremely reminiscent of the arcade hit. The action was fast and furious, sprite flickering was kept to a bare minimum, and there were plenty of meaty sound effects to enjoy. Add in the fact that none of the original controls were sacrificed and you have yet another cracking title that certainly deserves a special place in your collection.

PITAFALL! II: LOST CAVERNS

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

08 **While the original *Pitfall!* is still a fantastic game, we constantly find ourselves returning to its superior sequel whenever we fancy participating in some jungle antics.** Thanks to the cartridge containing its own chipset, the visuals in *Pitfall! II* were very advanced for their time and were complemented by an extremely impressive soundtrack – indeed technically *Pitfall! II* remains one of the best looking and sounding games that we've ever played on Atari's console. If you're looking for a tense platformer, *Pitfall! II* should be tracked down at all costs.

09

ICE HOCKEY

- **RELEASED:** 1978
- **PUBLISHED BY:** ACTIVISION
- **CREATED BY:** ALAN MILLER
- **BY THE SAME DEVELOPER:** SKIING, TRACK & FIELD, DECATHLON, BASKETBALL

09 **There were plenty of sports titles available on the Atari VCS, but few came close to the greatness of Alan Miller's excellent *Ice Hockey*.** It's only two-on-two, and the graphics were rather simplistic to say the least, but none of that matters in the slightest as the all-important gameplay more than delivered. You had a surprising amount of control over both your players, the action was fast and furious and, once you got the hang of it, you could pull off shots from a variety of different angles. It was even possible to check opponents and send them crashing to the floor if you couldn't regain control of the puck. Another great title from Activision that needs to be owned.

THRUST

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

10 **There's an amazing array of homebrew titles currently available for the 2600, but Thomas Jentzsch's *Thrust* remains one of our favourites and shows off just what Atari's console can be capable of in the right hands.** It was a great conversion of the original Commodore 64 classic and featured some very impressive visuals and a real sense of inertia that made it a joy to play. There was some fantastically smooth scrolling on display and the controls themselves were superb, meaning that you'd never blame them when you inevitably crashed into the desolate landscape. Don't turn your nose up at its homebrew status. *Thrust* was a superb title for the 2600 and deserves to be played.

10

RETROINSPECTION

INTELLIVISION

WITH ITS CUTTING-EDGE GRAPHICS AND SOUND, THE INTELLIVISION WAS THE WORLD'S FIRST 16-BIT GAMING CONSOLE AND WORTHY SUCCESSOR TO THE ATARI 2600. ARMED WITH THE GREATEST CONTROLLER EVER, IT TOOK THE WORLD BY STORM, AS FEW DICTATORS COULD HAVE ONLY DREAMED. RETRO GAMER EXPLAINS ITS TURBULENT AND CONVOLUTED HISTORY, THE UPS AND DOWNS, ITS BATTLES WON AND LOST IN A COLOURFUL RETROSPECTIVE DEDICATED TO THE MEMORY OF THE MIGHTY INTELLIVISION

The Intellivision: it epitomised cool elegance and sophistication during the maelstrom days of the videogame revolution in the early Eighties when the gold-disked beauty slogged it out with the mass-marketed Atari 2600.

In a David and Goliath scenario, the Intellivision came armed with more than a slingshot. It was the world's first 16-bit gaming console with a voice synthesizer box and kit allowing it to mutate into a home computer and music studio. It also had a wondrous controller; the best the world has ever seen. Unlike the 2600 with a woefully unresponsive pillbox and daft button as a joystick, the Intellivision came with two keypads that moulded the hand and fingers better than James Wood's bionic-cancer gun in *Videodrome* (1983). Not only did the controller have a number pad and plastic interchangeable overlay, the gaming disc featured 16 positions compared to the 2600's eight. As controllers go, it was sheer gaming nirvana that allowed precise and graceful play.

The majority of the games were light years ahead of the competition. *Utopia* was one of the first 'god' games, *B-17 Bomber* with the Intellivoice offered heart-pounding missions to the heart of the Third Reich, dodging flak and enemy fighters; *Mountain Madness: Super Pro Skiing* was blistering racing where opponents slammed into trees; *Auto Racing* also had a cameo in TV series *Knight Rider*, and *Advanced Dungeons & Dragons: Cloudy Mountain* would see foolhardy adventurers losing their bowels and being ripped to bits. And there were dodgy third-party games such as *The Texas Chainsaw Massacre* and the saucy XXX romp *Custer's Revenge*, for the more adult-oriented gamer. However, such luxury and refinement came at a price when the Intellivision was released in 1980: a hefty $300 ($800 in today's money). But it was worth every cent to have a console with the cutting-edge style and polished power of, say, Alain Delon, compared to the Atari's Vinnie Jones.

The Intellivision's roots stretch back to 1977, when Mattel introduced one of the world's first handheld videogames, and the same year Atari released the VCS, better known as the 2600. In 1978, Mattel began work on the Intellivision in California, and a year later, the console was test-marketed with four games. The response to the Atari's new challenger was promising, and the Intellivision sold throughout the US, with 19 titles reaching sales of 175,000 units. Another competitor to the Intellivision and 2600 was the 8-bit Philips Videopac G7000 that featured an alphabetical keyboard. Despite selling fairly well, shifting over a million units in the US alone throughout the early Eighties, the console was doomed due to a severe lack of third-party support. One of the G7000's better titles was *Satellite Attack*, seen to good effect in the violent cop flick *Order Of Death* (1983), where Harvey Keitel slums it with video junkie and psycho John Lydon aka Johnny Rotten.

To satisfy demand as well as the R&D of new titles, Mattel hired top programmers who sheltered behind the veil of the Blue Sky Rangers in a bid to stop Atari poaching the cream of its talent. With the Intellivision fortified with the best

» Is it a computer? Is it a console? No, it's the Mattel Keyboard Component

SPECS (MASTER COMPONENT):

CPU: General Instruments CP1610· 16-bit processor @ 894 KHz

Memory: 7k internal ROM, RAM and I/O structures, remaining 64k address space available for external programs/256-by-8 but static RAM chip (147 bytes optimised for gameplay); 1,325 bytes of RAM, 7,168 bytes of ROM

Controls: Two hand controllers, 12 button numeric keypad, four action keys, 16-direction movement disc

Sound: Sound generator capable of producing three-part harmony

Colour: 64 program-defined 8-by-8 images; 160 pixels wide by 196 pixels high

Video Resolution: 192 vertical by 160 horizontal picture elements

INTELLIVISION

• Early box art was very distinctive and immediately let you know that you were looking at an Intellivision game.

• An early catalogue cover, which demonstrates just how exciting owning an Intellivision could be

COMMUNITY INTELLIVISION SITES TO WATCH

Intellivision Lives
www.intellivisiongames.com

Run by Keith Robinson, who was one of the Blue Sky Rangers and responsible for *Tron Solar Sailer* and *Shark Shark!* So he knows his onions. Not only that, the site is lovingly maintained and features lots of facts on the Intellivision. Go look see now.

Intellivision World
www.intellivisionworld.com

English and Italian site that has brochures, instructions and emulators. The hardware section is a joy for Intellivision techies, as is the exhaustive rarity and price guide. Apparently one of the more obscure games, *Congo Bongo*, can reach an incredible $839.

Intellivision Gumbo
www.home.earthlink.net/~classic-videogames/intellivision

One that's hardly going to win prizes for design, the Intellivision Gumbo site has rare and wonderful posters and promotional material from the past. The page on the Intellivision Demonstration Unit, Model 3806, is of interest.

programmers, artists and the cash cow that was Mattel Electronics, the videogame war with the Atari 2600 was going to get real ugly

In 1981, Mattel invested $6 million in a national ad campaign in direct competition to Atari that compared the graphic power of the Intellivision to the 2600. For the first time in gaming history, the media was whipped into a frenzy, predicting a bitter war between the two giants, and despite being twice as expensive as the 2600 the Intellivision sold over 850,000 units. In what was to be the Intellivision's finest hour in an industry now valued at $1.5 billion, Mattel announced a staggering $100,000,000 profit in 1982. A number of the most popular gaming cartridges sold over a million units and Activision, Imagic and Atari developed their own software for the system, all eager to get a piece of the action.

With 50 titles to go with the system, the Intellivoice was released with three games: *B-17 Bomber*, *Space Spartans* and *Bomb Squad*. A revolution in videogaming, the Intellivoice orchestrated limited but effective speech sampling that could enhance atmospherics. However, despite positive reviews, the Intellivoice bombed, with only 300,000 units sold, the remainder gathering dust in warehouses. The fourth title, *Tron: Solar Sailer*, only shifted 90,000 copies and other voice-enhanced games in development such as *Space Shuttle*, *Magic Carousel*, *Convoy* and *Quest* – a promising *Dungeons & Dragons* title – rotted in limbo when the Intellivoice was quietly buried in August 1983. With a $20 million ad campaign starring actor Henry Thomas fresh from Steven Spielberg's *E.T.* (1982), Mattel promoted its latest gadget: the computer keyboard.

Released in limited numbers at a whopping $600, it was powered by 64-bit technology and a secondary CPU when most home computers of the period could only muster 4k to 16k of number-crunching power. With a built-in cassette drive and optional connection for a printer, the Intellivision was more than a gaming console – a fully functional home computer. An ambitious but expensive enterprise, the keyboard failed to enthuse the imagination of the public – the keyboard, console and games fetched over $4,000 in a recent eBay auction – and Mattel concentrated on gaming software, hiring over 100 staff. At the end of the year, the console was released in Japan by Bandai and worldwide Christmas sales were strong, despite competition from the new ColecoVision. Sadly, the Intellivision's popularity with the masses was to wane as a gaming depression loomed – the market was saturated with product and there were not enough sales going round for all the companies to survive. The Intellivision's salad days were over.

In 1983, the gold and wood grain Intellivision was superseded by a sleek $150 light grey model in a bid to attract sales – the Intellivision II. Also, the ECS (Entertainment Computer System) hit the shelves. An inexpensive alternative to the computer keyboard it was limited to a 2k expansion, but the ECS could also be used as a music device with the 49-key synthesizer; gamers could now become budding New Romantics. Yet the ECS was doomed when the Mattel fat cats decided to throw their bucks at gaming software and canned what was a novel piece of equipment. Towards the year's end, 100 Intellivision games were produced and the System Changer module, a cheeky 2600 clone that used the Intellivision for its power, allowed Atari games to be played.

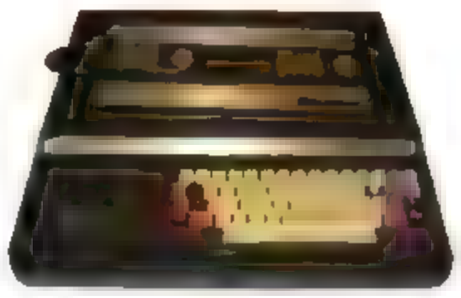
☐ **Programmer Ray Kaestner**, who originally worked on *Quest*, wrote the code for what is considered a perfect port of the arcade version of *Burger Time* in five months.

A gaming device way ahead of its time was the PlayCable, an adapter that plugged in the cartridge slot of the Intellivision. For $5 a month, it allowed up to 20 games to be downloaded via cable and stored on the machine's RAM. Each month, the games would be rotated and overlays and gaming instructions would be sent to subscribers. However, the PlayCable could not store larger games due to its limited memory and, although popular in the areas that provided the service, it was discontinued in 1983. The year also saw the introduction of the Atari 5200 and the Vectrex, and as games flooded the market, the Intellivision's days as the numero uno were numbered. As a consequence of mass product availability and competition coupled with limited market interest, the industry panicked and collapsed. Smaller companies threw in the towel and the big boys tightened their purse strings. The Intellivision II was sold off for $69 and Mattel sacked two-thirds of its programming staff with a record loss of $300 million. Suffice to say, plans for the Intellivision IV Master Component with 3D graphics and modem that let two players engage together over a phone line were canned.

In 1984, Mattel shut the doors on its gaming business and sold the Intellivision to INTV Corp, which continued to flog the console although the videogame industry was at that time presumed dead in the water. As stock dried up, the company produced the INTV System III in 1985, which was, in essence, the original Intellivision, sometimes sold as the Super Pro System. The NES was released in the mid-Eighties and its success convinced INTV to hire former Intellivision staff to complete unfinished Mattel games, as well as republish older but popular titles. With sales of 10,000 to 20,000 units, turnover was low but profitable as INTV was a barebones operation. As the Atari 7800 and the 8-bit Master System sales proved encouraging, INTV announced the INTV System IV, but it was never released. Based on the Intellivision III Master Component from 1983, which was also unreleased, the System IV was rushed into development to compete with the ColecoVision with high-resolution games (320x192 pixels) and a built-in Intellivoice. In 1988, the writing was on the wall for the ageing Intellivision. Stores ceased trading with INTV and the company developed software for the NES, finally filing for bankruptcy in 1990, its remaining stock dumped in cheap stores such as Tandy/Radio Shack.

☐ **But the Intellivision** refused to die and it lives on. The original Blue Sky Rangers, pioneered by Keith Robinson, formed Intellivision Lives in 1995, and the former Mattel Electronics boffins and programmers obtained exclusive rights to the console and its entire catalogue of games. Due to public demand for retro gaming in an age where modern games are coated in high-gloss graphics but suffocate in a vacuum of zero gameplay, there is a growing trend for Intellivision software from veteran players to noobs alike, attracted to the system's simple yet accessible titles. Thanks to Intellivision Lives, PC and Mac emulated versions of games are marketed, as are games for mobile phones published by THQ Wireless. Direct-to-TV units and greatest hits packages, T-shirts and mugs brandishing the Intellivision logo of choice are available, as is *Intellivision In Hi-Fi*, a CD of the catchiest tunes from the games. So now there's no excuse not to whistle along to the insanely infectious score to *Snafu* while zipping down the motorway.

Indeed, in its three decades of gaming popularity, the Intellivision remains true to its core: intelligent television. With over 125 titles produced and about 3.5 million consoles sold, the Intellivision continues to draw a wealth of gamers attracted to the brand, the games and its components that pushed technological boundaries from a gaming machine to one of an advanced home computer. And where the competition has now been buried under the sands of time, the future of the Intellivision is bright and cheerful. And, as the strap line for the Intellivision Lives website states bold and proud 'Blocky after all these years.' Yeah, baby. You had better believe it!



SPECS (MASTER COMPONENT AND KEYBOARD COMPONENT COMBINED):

Memory: 16k RAM resident (10 bit) words memory can be expanded to more than 1,000 8k pages (8 megabytes)

Keyboard: 60-key typewriter keyboard

Tape Cassette Drive: Built-in completely computer controlled. Records/plays two digital and two audio tracks in one direction. 30 minutes of program material and data storage

Video Resolution: Standard 192 vertical picture by 160 horizontal elements. High-resolution alphanumerics. 24 lines of 40 characters

Expandability: Two parallel peripheral I/O expansion ports, which allow addition of external memory, peripherals, plus access to CPU bus

Potential Peripherals: Telephone modem, voice synthesizer and printer

Credits: Thanks to Keith Robinson and Henry E.T. Thomas (the latter a **Retro Gamer** drinking partner who couldn't be bothered to be associated with the Intellivision now that he's all grown up. Cheers mate. © July 2008

INTELLIVISION

01

PERFECT TEN GAMES

Sleek, stylish and with those innovative looking controllers, Mattel's Intellivision proved more than a match for Atari's 2600. Supported by a host of great games, it was rather tricky choosing our ten favourites, but with any luck you'll hopefully agree with our final ten choices.

B-17 BOMBER

- **RELEASED:** 1982
- **PUBLISHED BY:** MATTEL ELECTRONICS
- **CREATED BY:** MATTEL
- **BY THE SAME DEVELOPER:** ADVENTURE MASTER

01 **A rather neat** little game, this one. *B-17 Bomber* has you playing the role of a steadfast pilot whose job it is to take out various Nazi targets across mainland Europe by – ironically – waving a black cross over them and pressing a button to release your bombs. Yes, the idea of *B-17 Bomber* might sound silly and a bit simplistic, but the game was pretty innovative for its day, and it doesn't look too shabby either. The most novel aspects of *B-17 Bomber* are the multiple camera angles that could be accessed brilliantly by turning the dial, and the scary inhuman warnings that crackled from the Intellivision's pant destroying voice box peripheral that warned you of upcoming hazards and targets that you had to eradicate.

DINER

- **RELEASED:** 1987
- **PUBLISHED BY:** INTV CORPORATION
- **CREATED BY:** REALTIME
- **BY THE SAME DEVELOPER:** TOWER OF DOOM

02 **The Intellivision is** renowned for its appetite for tasty arcade conversions, and while *Burger Time* can stand tall as one of its tastiest looking, feeling and, uh, sounding, *Diner* – it's Intelli-exclusive unofficial sequel – just edges its way onto this list. Smooth-feeling and gorgeous-looking, thanks to its brilliant faux-3D look, *Diner* had you help something that looks like the Pillsbury Doughboy make a sub sandwich by kicking things that are referred to as 'Food Balls' into a large roll at the base of the screen. To make sandwich prepping more hazardous, you also had to avoid the deathly touch of frankfurter guys, animated bananas and frothy cappuccinos – or are they ale tankards? – by peppering them with pepper spray.

02

DONKEY KONG JR

- **RELEASED:** 1983
- **PUBLISHED BY:** COLECO
- **CREATED BY:** NINTENDO
- **BY THE SAME DEVELOPER:** DONKEY KONG

03 **Given that the** Intellivision version of *Donkey Kong* was considered – after first viewing by Mattel – to be an attempt by Coleco to try to sabotage its machine, it wouldn't be unfair to say that there wasn't a lot riding on this game being anything other than another botched assassination attempt. However surpassing the original in every way, *DK Jr* is a colourful and smooth Intellivision that shows what the machine is capable of. So Jumpman looks like a Smurf, Kong like Swamp Thing and DK Junior that 'munkey' from Johnny Vegas's ads, but nonetheless there's still some faithful arcade gameplay to be found lurking in here.

LOCK 'N' CHASE

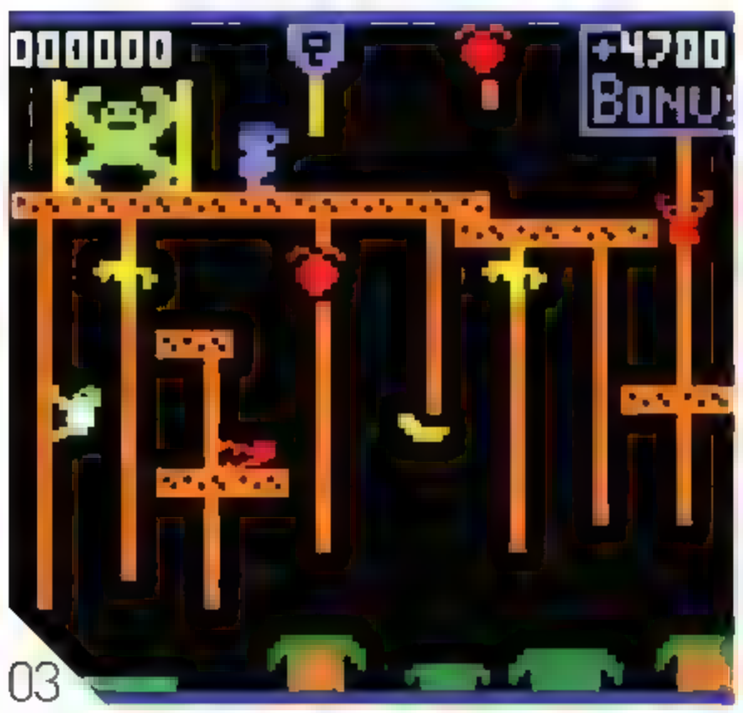
- **RELEASED:** 1982
- **PUBLISHED BY:** MATTEL ELECTRONICS
- **CREATED BY:** MATTEL
- **BY THE SAME DEVELOPER:** ARMOR BATTLE

04 **This clone of** *Pac-Man* is brilliant, far better than the atrocious 2600 port. Now it's important to mention that *Lock 'N' Chase* isn't necessarily better than *Pac-Man*, but it provides a novel twist on the gameplay ethos and, it was native to the machine, too. *Lock 'N' Chase* has you playing a colourful bank-robbing tomato who must avoid capture by a patrolling group of primary-coloured police. It's a little more claustrophobic than *Pac-Man* and feels more frantic, but to make evasion easier you had the advantage of being able to close doors behind you to slow down the law enforcers.

Q*BERT

- **RELEASED:** 1983
- **PUBLISHED BY:** PARKER BROS
- **CREATED BY:** GOTTLIEB
- **BY THE SAME DEVELOPER:** REALTIME

05 **For arcade faithfulness** this is probably as good as it got for the Intellivision, and there's no shame in that because *Q*bert* is a tour de force for the machine. While it's not without its faults and niggles – like forcing you to press the reset button every time a game ends – what's here looks, feels and plays a lot like the arcade machine. Excelling in the audio and visual department, fans of the arcade will come to appreciate how Parker came to wholesale nearly all of the elements and enemies from the arcade game for this home port while somehow not making the game look like a poorly decorated Christmas tree.



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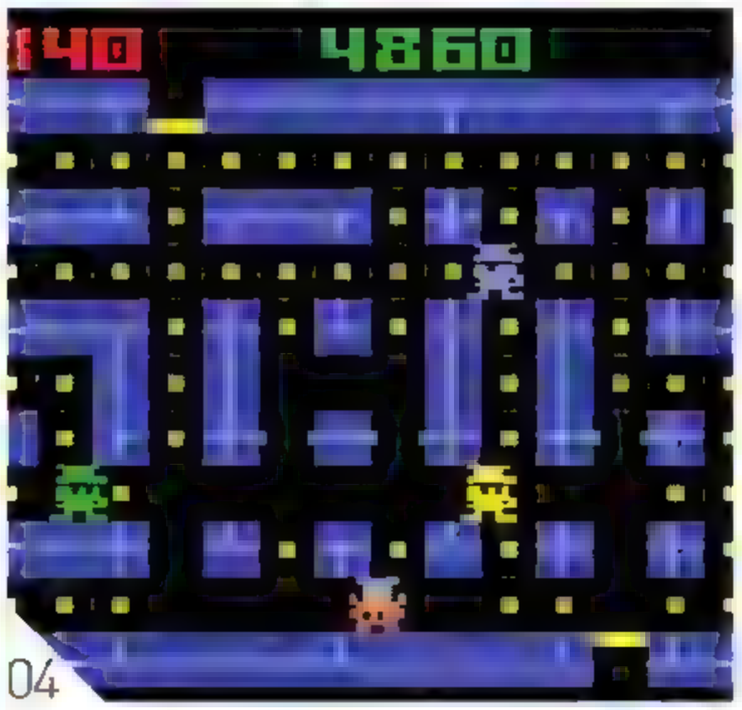

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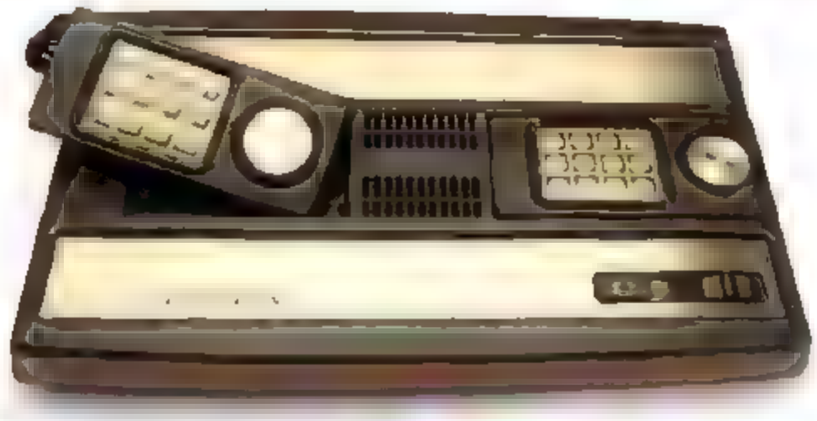
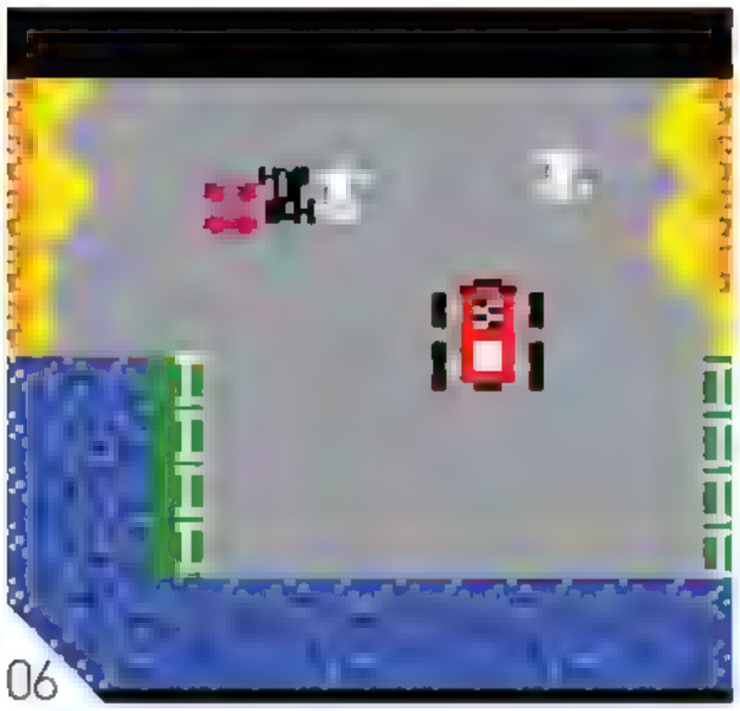




06

BUMP 'N' JUMP

- **RELEASED:** 1982
- **PUBLISHED BY:** MATTEL ELECTRONICS
- **CREATED BY:** DATA EAST
- **BY THE SAME DEVELOPER:** RING KING

06 Another quality arcade conversion that might look a little incredulous, but it somehow remains pretty faithful to the original. Gorgeous-looking and great fun, *Bump 'N' Jump* is a colourful riot of racing. The game has you bumping and jumping onto opposing cars, clearing overpasses in the track and tacking in some incredibly sunny-looking visuals that change with the seasons to rescue your kidnapped gal. The game's music and sound effects are also sublime and suit the look of the game brilliantly. So if you're a fan of Data East's early jostle racer then you'll find a lot to like in this impressive Intelli version.

07

DRACULA

- **RELEASED:** 1983
- **PUBLISHED BY:** MAGIC
- **CREATED BY:** IMAGIC
- **BY THE SAME DEVELOPER:** SWORDS AND SERPENT

07 Okay, here's another game that makes it onto our list because it's well-loved by collectors and is exclusive to the machine. The first thing that strikes you about *Dracula* is how great it looks, the second is how much depth and interaction there is. The idea is simple: you play the titular Prince of Darkness and must avoid a biting by patrolling werewolves and gorge on the necks of townsfolk before sunrise. You could turn yourself into a bat, turn street denizens into zombies – and control them with the second pad – and play knock-door-run and watch the homeowners do all the running. Nothing complicated here, but what there is is presented brilliantly.

08

MICROSURGEON

- **RELEASED:** 19[illegible]
- **PUBLISHED BY:** IMA[illegible]
- **CREATED BY:** IM[illegible]
- **BY THE SAME DEVELOPER:** [illegible] TRON

08 We admit this isn't one of the best games on the machine, but for its day it was certainly postmodern. This hideous screenshot is how you'd look had you played the part of Jennifer Jason Leigh in *The Hitcher*. It's your internal organs spliced in half and painted in the style of Picasso and it provided the backdrop for *Microsurgeon*. You play a tiny probe swimming through gastric acid and organs to repel infections, disease and tumours. As you free roam the body, cleverly travelling through the blood stream makes you move quicker. Given its slow pacing, the game itself isn't amazing, but its uniqueness makes it popular among collectors.

09

DEMON ATTACK

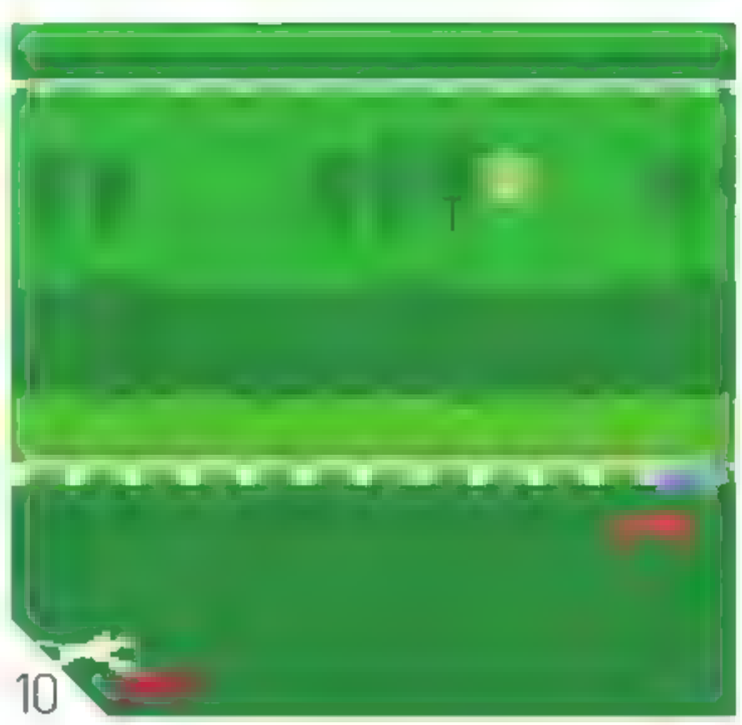
- **RELEASED:** 1982
- **PUBLISHED BY:** MAGIC
- **CREATED BY:** MAGIC
- **BY THE SAME DEVELOPER:** SAFECRACKER

09 This was a really difficult decision, it was a toss-up between this and *Defender*. Both are fantastic games, both tear shreds into the Atari ports – especially *Defender*. However, *Demon Attack* just pips it to the post. Why? Well just look at it. It's a beautiful-looking version. It has detailed backdrop graphics of the moon's surface and the Earth in the distance, giving us a nice reminder of what it is we're actually fighting for. The most notable extra the Intellivision port had over the Atari version, however, was the inclusion of the arcade game's impressive mothership, a gargantuan, demonic-looking base that manages to smother half of the screen. It proves an epic foe to topple and looked amazing.

HORSE RACING

- **RELEASED:** 198[illegible]
- **PUBLISHED BY:** MATTEL ELECTRONICS
- **CREATED BY:** MATTE[illegible]
- **BY THE SAME DEVELOPER:** [illegible] A L MAN

10 A fantastically quirky game, *Horse Racing* does exactly what it promises to do: allow you to bet on horses. And unless you're a betting man (or woman) that might sound as appealing as running into traffic, but like a lot of these Intellivision games we're finding that when you actually scratch at their surface they're usually fantastically well put together, and *Horse Racing* is one such title. At its heart it's probably best appreciated as a multiplayer game. It's essentially one of those Kentucky Derby machines you occasionally see hanging out with the 2p machines in the arcades. You and six pals can have a flutter on the gee gees and even get to try to influence the result with the aid of some severe whip-cracking. Great fun.



10

RETROINSPECTION: GAME & WATCH

AT THE DAWN OF THE EIGHTIES, NINTENDO WAS ONLY JUST STARTING TO EXPLORE THE INDUSTRY IT WOULD EVENTUALLY DOMINATE. LONG BEFORE THE NES, SNES AND N64 THERE WAS THE GAME & WATCH – THE SERIES OF HANDHELD TITLES THAT WOULD ULTIMATELY SIRE THE ALL-CONQUERING GAME BOY. DAMIEN MCFERRAN EXPLORES THE HISTORY OF POCKET-SIZE GAMING

Year released: 1980 - 1991

Original price: Approx $30

Buy it now for: £5+ (depending on model)

Why the Game & Watch range was great... The range offered true portability for the first time in the history of the videogame industry. The units were small, durable, and the cell batteries lasted for ages before they needed to be replaced. Forced to work within the confines of the crude LCD technology, Nintendo succeeded in crafting some truly mesmerising gaming experiences, the vast majority of which stand up to scrutiny even by today's standards

When you look back on the history of videogames it's not uncommon to discover amusing anecdotes regarding defining moments in the industry. For example, rumour has it that Namco's *Pac-Man* was conceived when the game's creator Toru Iwatani glanced at a pizza with one slice missing, and there's an equally famous tale that suggests that Nintendo's renowned Mario was named after the landlord of the company's American offices, who happened to bear an uncanny resemblance to the Italian plumber. Whether or not these stories are actually true is a moot point, but it's impossible to deny that they lend our hobby a sense of wonderment, and it's remarkable to think that these toweringly popular ideas can be born from such humble beginnings.

The genesis of Nintendo's Game & Watch series is recounted in an equally whimsical tale. According to legend, Nintendo engineer Gunpei Yokoi came up with the concept after observing a bored Japanese salary man absent-mindedly fingering his pocket calculator while travelling to work. If the story is true then this seemingly innocuous encounter ultimately gave birth to portable videogaming as we know it today. Yokoi was tragically killed in a roadside accident in 1997, and although he would gain worldwide fame and adoration as the creator of the Game Boy, many view his earlier LCD legacy with the most fondness.

Yokoi started working at Nintendo in 1965, assuming the modest role of an assembly line engineer. The Nintendo of that era was a very different beast to the one that we know today, the main focus of its business was 'Hanafuda' playing cards. According to yet another of those irresistible yarns, Yokoi created an extendable arm in order to amuse himself during the long working hours, and this device happened to catch the eye of company president Hiroshi Yamauchi, who was inspecting the factory at the time. Yamauchi was on the lookout for a product that could turn around Nintendo's fortunes; the playing card market had slumped badly in the mid-Sixties and the president had tried all manner of different tactics to turn a profit.

Yamauchi was instantly intrigued and tasked the young Yokoi with turning his extendable arm into a bestselling product. It was a risky move that was by no means guaranteed to succeed, but the re-christened 'Ultrahand' proved to be a runaway success, shifting more than 1.2 million units worldwide, and would prove to be the first in a long line of popular toys to spring from the mind of Nintendo's new star employee. These novel creations would eventually earn Yokoi his very own department within the company, known as Research and Development 1 Group.

Towards the end of the Seventies, Nintendo started to disregard toys in favour of videogames, and it was during this time that Yokoi had his aforementioned chance meeting with the bored businessman and his calculator. It was ideal timing: LCD technology was cheap and videogames were big business. However, up to this point quality gaming was restricted to either the arcade or the home. Several companies had already produced portable games, but they were usually rudimentary LED-based units with uninspiring gameplay and were too bulky to be deemed truly mobile. Yokoi watched the efforts of companies like Mattel and Tomy with interest; he had his own ideas for the portable gaming industry.

RETROINSPECTION: GAME & WATCH

It was during the development of the Game & Watch that Yokoi laid down principles of hardware design that would echo through Nintendo's history right up to the present day, dubbing it 'Lateral Thinking of Withered Technology' Freelance journalist and all-round Yokoi admirer Lara Crigger explains: "Essentially, Lateral Thinking of Withered Technology boils down to using mature technology in novel or radical applications At the time of the invention of the Game & Watch, LCD technology was everywhere It was a well-understood process, and because prices for individual components had dropped so much, integrating LCD into a product was relatively inexpensive Some people at Nintendo wanted to use fancier technology in the Game & Watch, technology that would have reduced battery life and raised costs, but Yokoi insisted that affordability was key and that the player cared more about fun gameplay over flashy technology." Yokoi would later apply this philosophy to the production of the Game Boy, and Nintendo has taken a similar stance with recent hits such as the DS and W

Yokoi faced a tricky conundrum when it came to deciding upon the best interface for his new product He quickly decided that a conventional joystick would impede the Game & Watch's portability, so he began looking for solutions that would take up less space. Many of the early machines simply possessed a couple of buttons with which to control the game, usually corresponding to simple actions such as moving left and right or jumping, but 1982's *Donkey Kong Jr* changed all that. Although it was actually four buttons arranged in a cross shape, with each one corresponding to up, down, left and right, it would later evolve into what we now know as the direction pad, or 'D-pad' for short. This was a development of truly seismic proportions, as Crigger acknowledges: "The entire portable games industry wouldn't exist if it weren't for the invention of the D-pad. It was that first, necessary invention that made all portable gaming devices possible It comes down to basic ergonomics; the D-pad eliminates the need for a joystick, thus streamlining the controller interface and facilitating portability. A controller with a D-pad simply takes up less physical space " Compared to other methods of control available at the time, this new interface presented undeniable advantages. "The D-pad is a more intuitive method of controlling gameplay, compared to the alternatives," continues Crigger. "Look at a joystick' to manipulate it, you have to use the sides of your thumbs and fingers – or in some cases, your palm or whole hand That takes more manual effort than just pushing buttons with a thumb tip."

There was also an element of convergence with this new range of handhelds Although it seems like a trifling addition in today's technologically advanced world, the inclusion of a digital clock in each game – therefore giving rise to the name 'Game & Watch' – was a major selling point back in the early Eighties. Although LCD watches were commonly available, they were outside the reach of most children, so the Game & Watch was a useful device as well as a source of entertainment. A handy alarm feature was also available – possibly to wake up the owner after a particularly heavy night of LCD gaming

Arguably the most vital piece of the hardware puzzle was the choice of power source that would bring these tiny games to life. Yokoi opted for 'button cell' batteries, previously seen in digital watches and calculators. Not only were these cheap to replace, they were also small and therefore fitted snugly within the machines without breaking the sleek, straight lines of the casing or adding any additional weight that might hinder portability. Yokoi's desire to ensure his products would be inexpensive to run and not require a constant supply of fresh batteries played a vital part in ensuring the success of the range – a fact he was sure to remember when he came to create the Game Boy almost a decade later

But there was much more to the appeal of the Game & Watch range than just mere interface design and long-lasting power Because LCD technology granted the developers a very limited amount of on-screen real estate in which to place their action-packed gaming experiences, the games themselves tended to be extremely focused "There was little room for design screw-ups," says Crigger. "If the game mechanic wasn't simple enough, or addictive enough, then the game failed It couldn't hide behind flashy FMVs or intricate storylines It was just player and mechanic, and that's it." The experiences offered by the Game & Watch may seem primitive by today's standards, but that very same simplicity was a major factor in the ultimate success of the lineage and it's a testament to the concept that the games are still eminently playable even today. "They're appealing for the very same reason that *Tetris* will never really die: simplicity is addictive," comments Crigger. "People love activities that are easy to learn but hard to master"

The first Game & Watch title was the simplistic *Ball*. Released in 1980, this endearingly basic game showed only faint glimmers of the kind of depth that later Game & Watch titles would possess; the screen was completely blank, the gameplay was unsophisticated and the LCD characters somewhat crude – clearly a case of the developer finding its feet with new technology Sales weren't astonishing, but the

» By the time the Game & Watch Tabletop series appeared, Nintendo was being a bit more hands on with worldwide distribution, as this advert proves

» Light-hearted adverts such as these appeared in UK comics like *Eagle*

» The man himself Gunpei Yokoi created the Game Boy, but sadly died in 1997.

» LCD will never die: Mr Game & Watch kicking arse in *Super Smash Bros Brawl*

RETROINSPECTION: GAME & WATCH

COMMUNITY GAME & WATCH SITES TO WATCH

Mike's Nintendo Game & Watch Forum

www mpanayiotakis.proboards19.com

Mike Panayiotakis's excellent forum is a vibrant hub of Game & Watch activity and is the ideal place to learn about the complexities of starting a collection. A must-have resource for prospective fans

Andy Cole's Game & Watch Collection

homepage ntlworld com/gameandwatch/gw htm

Cole's G&W page is one of the net's oldest and forms part of a wider site that charts his entire videogame collection. The best part is the GIF animations showing sections of each game

Parachuter

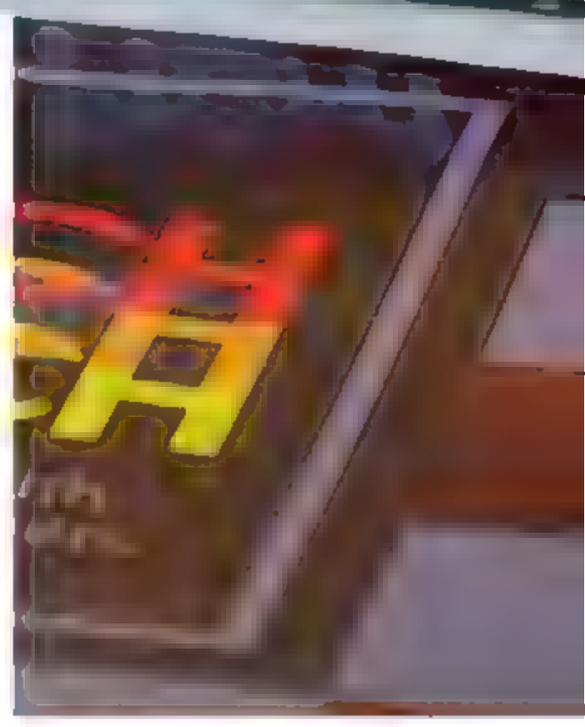
p-edge nl/parachuter/

Martin van Spanje's site is attractive and brilliantly designed - which is no surprise when you consider his current job is a system developer. There are loads of high quality images to be found here, as well as some Game & Watch ringtones recorded by van Spanje himself

Game & Watch.com

www gameandwatch.com

Another well-revised site devoted to Nintendo's Game & Watch, having been online for over five years. It's easy to see why the site has been around for so long – it has bags of content and great design. Worth a visit should you crave more knowledge on the G&W series



game seemed to strike a chord with consumers, and this was enough to persuade Nintendo that it was worth creating further titles. *Ball* marked the first release of the 'Silver' series of Game & Watch titles, so called because of the colour of the metallic faceplate. The next step was the 'Gold' series, which was fundamentally the same machine but with a different faceplate and a smattering of static colour on screen to make the games seem a little more vibrant. This range spawned a mere three titles before it was superseded by the 'Wide Screen' variant in mid-1981. As the name suggests, the display was a whopping 30 per cent larger than the one seen in the Silver and Gold range.

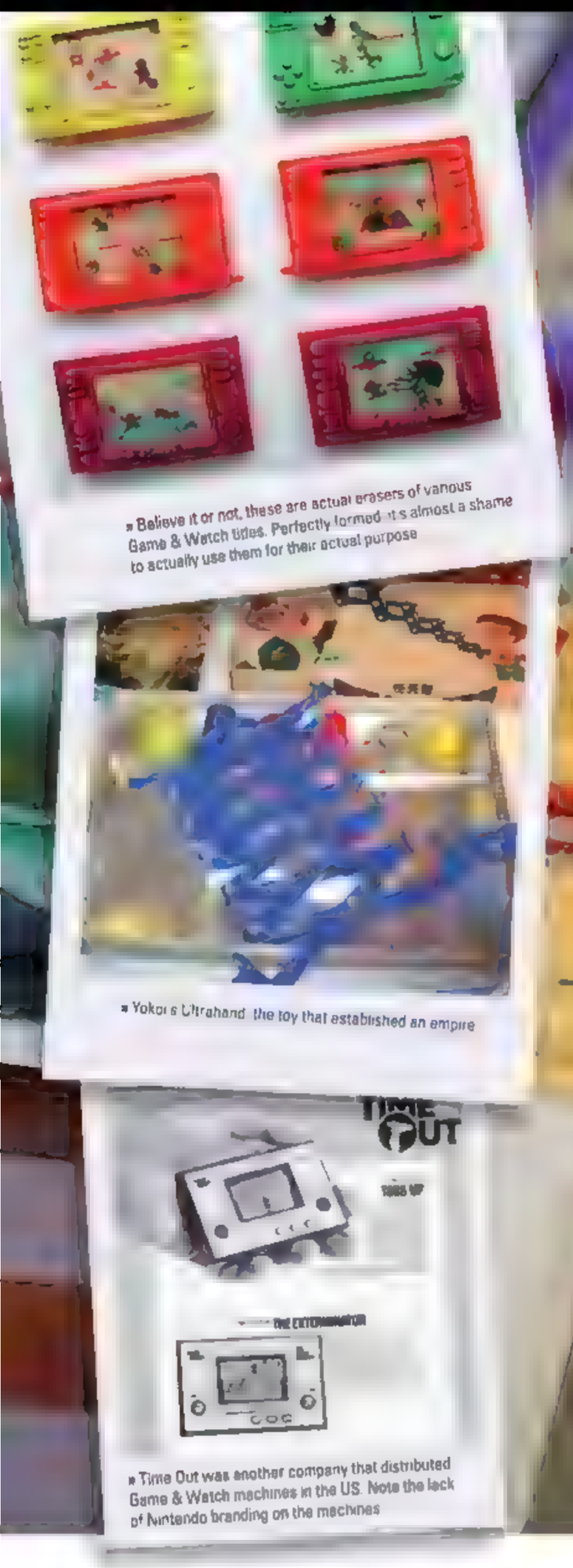
The limitations of the LCD display meant that Nintendo was always looking for ways to innovate, and the next logical step was to add another screen to double the amount of gameplay each title could potentially offer. The Multi Screen series kicked off with *Oil Panic* in 1982, but it was the release of *Donkey Kong* that really cemented the success of the range. Easily the biggest selling of all the Game & Watch titles up to that point, *Donkey Kong* was a startlingly faithful representation of the arcade smash hit. Iconic in design, the Multi Screen range would influence future Nintendo design choices. "It's no secret that the Nintendo DS was based on the original Multi Screen Game & Watch design, and that just shows how far ahead of its time this idea was," comments hardcore collector Mike Panayiotakis.

Released in 1983, the Tabletop series was something of a departure from the norm. It sacrificed portability for more impressive colour visuals and ran on bulky 'C' batteries. Sales of this machine were steady but nowhere near as impressive as its Wide Screen and Multi Screen cousins, and therefore only four Tabletop titles were ever produced. A refinement of the technology resulted in the more mobile 'Panorama' series a few months later, which used a foldout mirror to enhance the vacuum fluorescent display. Nintendo's seemingly insatiable desire for colour gaming culminated in 1984's ill-advised 'Supercolor' range, which was, in fact, just a standard LCD display with a colour overlay. Only two games were ever produced, making this the least successful entry in the Game & Watch canon. Sensing that gaming was also a social pastime, Nintendo decided to publish the 'Micro Vs' series in the same year, which offered simultaneous two-player action thanks to a pair of small detachable controllers.

Also in 1984, the final hardware revision was released in the shape of the legendary 'Crystal Screen' machines. These were more traditional games in keeping with the Wide Screen style, but they possessed a transparent LCD display. Sadly, these screens were highly susceptible to damage. Marketed as a luxury item, the range didn't quite achieve the same kind of fame as the more traditional Wide Screen games, which by this point had been relaunched under the snappy title of 'New Wide Screen'.

Although it's strange to think it now, Nintendo didn't really command much of a presence outside Japan at the time, so worldwide distribution of early Game & Watch machines was handled by other companies. These included Mega (USA), CGL (UK), Ji21 (France), Videopoche (Belgium) and Futuretronics (Australia). Many of these firms would re-package the devices and in some cases remove the Nintendo logo altogether, instead replacing it with their own.

By the mid-Eighties, Nintendo had released the NES home console and the Game & Watch range took a backseat role. As the decade drew to a close, the seemingly vast reserves of innovation began to run dry, but it was ultimately Yokoi himself that would deal the deathblow to his beloved pocket-sized offspring. *Zelda*, the penultimate release in the range, hit shelves in 1989 – the same year as Yokoi's newest pet project: the Game Boy. It was instantly obvious that the writing was on the wall for the videogame and clock combo. The very last entry in the series was a

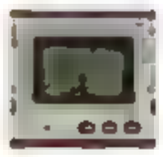


» Believe it or not, these are actual erasers of various Game & Watch titles. Perfectly formed, it's almost a shame to actually use them for their actual purpose

» Yokoi's Ultrahand: the toy that established an empire

» Time Out was another company that distributed Game & Watch machines in the US. Note the lack of Nintendo branding on the machines

DIFFEREM



Silver Range
The one that started it all. The Silver range consisted of five different titles and lacked the colourful screen overlays that would be seen in later titles. Five games were produced in low quantities and as a result they're pretty rare these days

Multi Screen
Predating the DS by over 20 years, the Multi Screen effectively gave twice as much action by adding an additional LCD display. Because the game could be closed when not in use, it made it even more durable. A smaller version that opened sideways was also released

Tabletop
Bulky, power-hungry and practically un-portable, the Tabletop range was something of a backwards step, recalling memories of the unwieldy electronic games of the late Seventies. Unsurprisingly, the range didn't sell as well as the traditional G&W machines, although in terms of gameplay these are still wonderful machines to own.

Micro Vs
Providing much-needed multi-player action, the Micro Vs range featured two small joypads that could be stored within the system when not in use. The thin screens were less welcome, however, and the series was not as successful as might have been expected.

loving homage to the game that started it all: 1991's *Mario The Juggler* recycled the gameplay from *Ball* but showcased gorgeous screen artwork. It was the end of an era, but with the new-fangled Nintendo wooing gamers the world over, few seemed to mourn its passing.

Given the durable nature of the Game & Watch range, the appealing design of the casing and the desirable Nintendo branding, it's little surprise that a truly hardcore collecting scene has risen up over the past few years. The reasons for this differ depending on which collector you happen to speak with. "For most of today's collectors, it's simply nostalgia," comments British Game & Watch fanatic Andy Cole. "People now find themselves with the resources to buy the games they lusted after in their childhood, which their meagre pocket money couldn't buy them." Others do it more for the love of the brand, such as Dutch collector Martin Van Spanje. "I have always loved Nintendo games, and the Game & Watch series are basically where it all started for that company," he says. "I want to see them all, and find out how Nintendo made progress."

Whatever the reason, amassing all 60 of these unique devices isn't an easy – or cheap – task.

"Even though many of the games can be found for a fiver, you need lots of cash if you want all 60 of them," explains Van Spanje. "My collection has already cost me around 3,600 euros, and I'm still missing four of the more expensive games. Also, I don't collect mint condition games and I don't care about the packaging and user manuals. If you want all of that as well, you need to at least double your piggy bank." Indeed, boxed specimens in pristine condition can fetch prices well into triple figures and the elusive '60th' game – a special edition of *Super Mario Bros* produced in 1987 – is very hard to locate. "This is the Holy Grail of Game & Watches and remained almost completely unknown in collector's circles for over a decade," explains Cole. "It was produced as a prize for a competition for owners of a NES F1 racing game. 10,000 were given away in Japan only, making this by far the rarest Game & Watch title. Only in the early 21st Century, when collectors in Japan spread the word, did this game become widely recognised. Because of its rarity, its value is higher than that of any other game in the range – expect to pay about £300 just for an unboxed specimen."

Another aspect that makes the range so appealing today is the durability of the games themselves. "As can be seen by the number appearing in auctions and in collections, they are still going strong, thanks mostly to their extremely simple electronics," comments Cole. "They are probably more reliable than a games console of today; I expect that they'll still be around long after the last PS3 is in a landfill." Van Spanje expands on this: "The games were intended for kids and fit inside your pocket. If you keep them safe, they will last forever, even if you play them regularly."

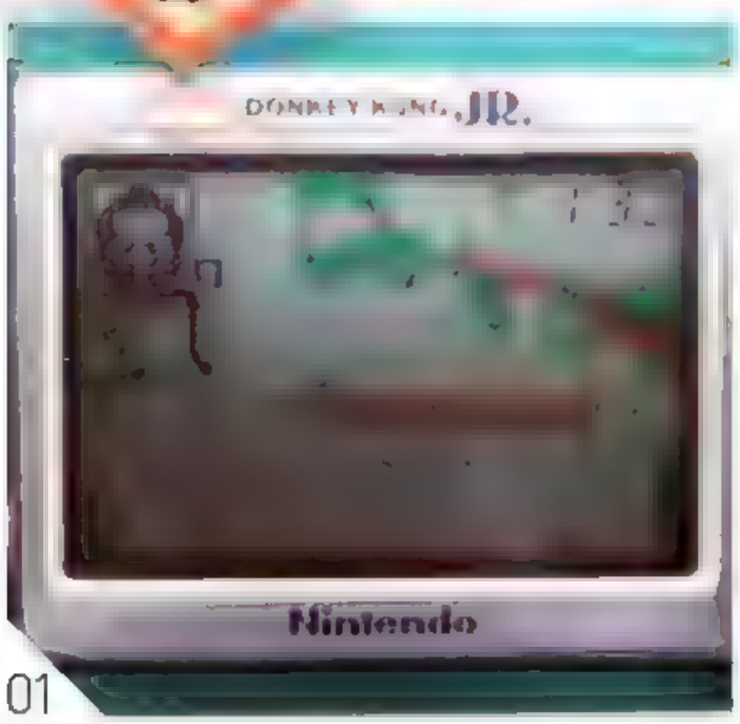
Has our intrepid gang of Game & Watch experts got any advice for prospective collectors? "A potential collector should first set a target," advises Panayiotakis. "There are many things to collect and buying everything isn't an option unless you have unlimited money. Do you wish to collect boxed games? Do you wish to get special versions of the games? Do you wish to get all 60 games? You need to focus on specific items and create a list of things you wish to collect." Cole gives similar guidance: "The answer I always give to this question is to go slowly, as it's possible to get a complete collection of every title in as little as a month or two if you have the money, but where's the fun in that? Decide on a goal before you start. For example, decide if you want loose or boxed games, special or regular editions, then stick to your goal and be patient to wait for the right games to come along. My collection took me about five years to complete but I got some extremely good bargains and that's more satisfying than blowing a few grand all in one go."

Special thanks to Andy Cole for providing exclusive hardware photography for this feature and thanks also to Justyn Chan for additional images.

GAME & WATCH

PERFECT TEN GAMES

Although the general quality of the 60 games released in the Game & Watch range is very high, there are obviously a handful of titles that stand out as true classics worthy of your time and money. We asked our trio of Game & Watch experts to come up with their most memorable titles.



01

DONKEY KONG JR (NEW WIDE SCREEN)

- **RELEASED:** 1982
- **BY THE SAME DEVELOPER:** CRAB [illegible]

01 **The first 'New'** Wide Screen release justifiably possesses a lofty reputation among hardcore collectors. "It has the best playability ever in a Game & Watch release," states Martin Van Spanje – which is high praise indeed when you consider the high quality of most Game & Watch titles. Mike Panayiotakis is in agreement. "This is the only game I owned as a kid and it holds a special place in my heart. It has some great gameplay as well. Assuming the role of Kong's cute offspring, the basic aim is to free your captive father by unlocking the bolts on his cage. It may have crude visuals but they're surprisingly atmospheric. "While none of the Game & Watch titles are exactly realistic, I always thought that this one really made you imagine that you *were* in the jungle," says Andy Cole.

DONKEY KONG II (MULTI SCREEN)

- **RELEASED:** 1983
- **BY THE SAME DEVELOPER:** TROPICAL FISH

02 **An early Multi** Screen release. *Donkey Kong II* is technically the sequel to *Donkey Kong Jr*, with Kong's plucky offspring once again called upon to save his beloved father – only this time across two hazard-packed screens. "This is a brilliant game," says Van Spanje. "After moving all the way up the second screen you have to work your way down again to set a switch. It's a challenge to play, and fun too, every time you open the cage and free your father." Featuring some lovely case artwork and attractive screen presentation, it's little wonder that *Donkey Kong II* was a roaring success and continues to be fondly remembered by fans even today. Because it was a huge seller, second-hand units are common and cheap, so if you're looking to start a collection then this is well worth investigation.

02

SPITBALL SPARKY (SUPERCOLOR)

- **RELEASED:** 1984
- **BY THE SAME DEVELOPER:** PINBALL

03 **One of the** two releases in the ill-fated Supercolor range, *Spitball Sparky* is a *Breakout* clone at heart. While it doesn't work as well as you might hope, it remains an intriguing example of Nintendo really trying to push the remit of the Game & Watch range. "It's great because it's an attempt to create bats-'n'-balls type gameplay using crude LCD graphics," says Van Spanje. "It's not altogether successful, but it is great to see Nintendo trying to work around the limitations of the screen and watch the games maturing ahead of the technology." Sadly, the larger Supercolor units are a lot less portable than other machines.

MARIO THE JUGGLER (NEW WIDE SCREEN)

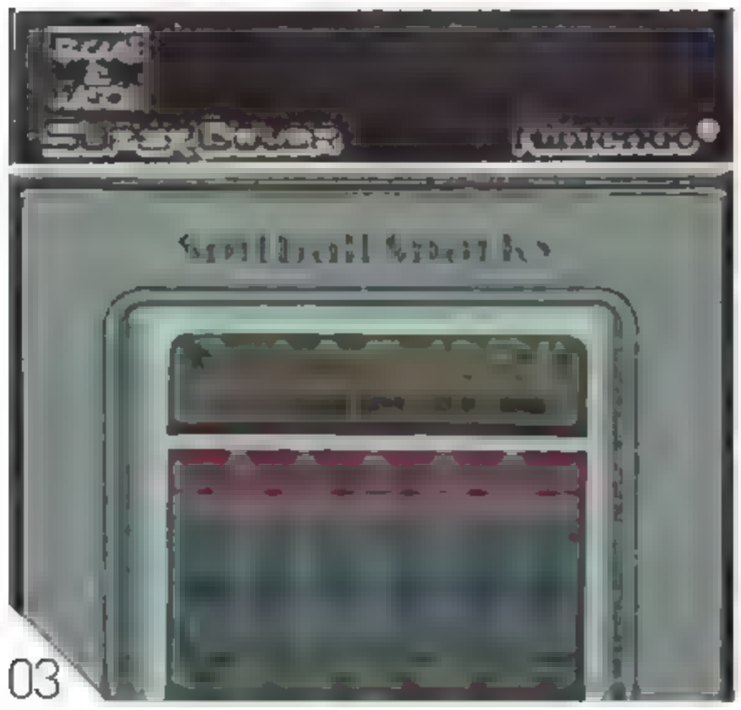
- **RELEASED:** 1991
- **BY THE SAME DEVELOPER:** BLACK JACK

04 **Although this was** the last Game & Watch handheld to be made, it's actually a remake of the first title in the lineage rather than a fully fledged release. The crude visuals of *Ball* are updated excellently, with Mario taking centre stage. The screen is also attractively illustrated with scenes from *Super Mario Bros*. *Mario The Juggler* looks really nice with a colourful screen background and the game is quite addictive and musical," says Cole. The gameplay isn't as deep as you might want, but it proves that the core concept is strong enough to remain entertaining. It's also quite collectable these days.

ZELDA (MULTI SCREEN)

- **RELEASED:** 1989
- **BY THE SAME DEVELOPER:** SAFEBUSTER

05 **The penultimate Game** & Watch was released in the same year as the Game Boy and by this point it was clear that the series was on borrowed time. Nevertheless, Nintendo chose to go out with a bang. "Even though it's nothing like the *Zelda* we now know, it did capture the feel of the world it was played in," says Van Spanje. "It's basically stabbing opponents with a knife, and then defeating the same old dragon over and over again, but it's a piece of *Zelda* history." Although it was a Multi Screen release, the action is confined to the lower screen, with the top display being used solely for statistics and information.



03

04

05

06

SUPER MARIO BROS (VARIOUS)

» **RELEASED:** 198(

» **BY THE SAME DEVELOPER:** RAIN SHOWER

06 **The first Game** & Watch release to feature horizontally scrolling levels, *Super Mario Bros* was incredibly advanced for its time. Although squeezing the addictive gameplay of the NES original into the primitive LCD hardware wasn't really a possibility, this is nevertheless a pretty convincing facsimile and remains one of the most entertaining titles in the range. The visuals are a little basic – this is mainly due to the scrolling levels, which use flat lines to give the impression of movement – but everything else is exceptionally polished. The special edition variant was limited to 10,000 and is very rare but it has the same gameplay as the other versions.

07

BALLOON FIGHT (NEW WIDE SCREEN/ CRYSTAL SCREEN)

» **RELEASED:** 19((CRYSTAL))
1988 WIDE

» **BY THE SAME DEVELOPER:** MARIO'S CEMENT FACTORY

07 **First released as** part of the coveted Crystal Screen range of Game & Watches, but eventually given a more affordable New Wide Screen outing, *Balloon Fight* is yet another painfully addictive addition to the Game & Watch line-up. Although *Balloon Fight* shares its name with the famous Nintendo arcade game, this brilliant Game & Watch is actually based on the 'Balloon Trip' mode that only appeared in the NES home console release. You play as a young chap with a jet pack and you're tasked with moving through the scrolling levels, collecting balloons and avoiding traps as you go.

08

CLIMBER (NEW WIDE SCREEN/ CRYSTAL SCREEN)

» **RELEASED:** 1986 (CRYSTAL)
[illegible] WIDE

» **BY THE SAME DEVELOPER:** [illegible] COPY

08 **Many collectors view** *Climber* as the 'perfect' Game & Watch release in terms of gameplay. "It's a near-perfect implementation of limited LCD graphics and manages to include multiple levels, moving platforms and end-of-level bosses," says Van Spanje. "It should still exist today as a mobile game. If not, someone should make it and re-release it." Like *Super Mario Bros*, the visuals look basic due to the scrolling levels, but *Climber* feels far more vibrant and active than most LCD titles. If you want a solid introduction to the world of Game & Watch, try this.

09

MICKEY MOUSE (WIDE SCREEN)

» **RELEASED:** 1981

» **BY THE SAME DEVELOPER:** MANHOLE

09 **It's amazing to** think this now, but many of the characters that graced the early Game & Watch titles were licensed from other companies, and Nintendo stars like Mario and Donkey Kong only got their chance to shine later. Along with Snoopy and Popeye, Disney's Mickey Mouse featured in several titles, with this Wide Screen outing probably his best. "I love playing the game and just like the look of it," says Van Spanje. The game involves catching eggs and is almost identical to another G&W release entitled *Egg*. It's believed that this other variant exists because Nintendo didn't have worldwide rights to use the *Mickey Mouse* licence. The gameplay is simple but addictive, and it is an interesting example of how Nintendo explored the weird and wonderful world of licensing in its early days.

MARIO'S BOMBS AWAY (PANORAMA)

» **RELEASED:** 19[illegible]

» **BY THE SAME DEVELOPER:** GOLDCLIFF

10 **It may be** common knowledge that Mario is a dab hand when it comes to sorting out your troublesome waterworks, but did you know that the plump Italian also has a highly decorated military career to his name? Witness *Mario's Bombs Away*, in which Mario dons his army fatigues and attempts to safely transport a succession of bombs to the enemy camp. Unsurprisingly, this dangerous activity isn't without its risks – one false move and Mario is on the wrong side of a massive explosion. "This is good fun to play and it looks good, as do all the Panorama games," says Cole. The Panorama series may not have been a huge success, but this game is certainly worth your time. Unsurprisingly, Mario seems to have disowned his wartime exploits these days – we can only guess that driving karts is less dangerous.

10

RETROINSPECTION

SINCLAIR ZX81

Processor: Zilog Z80

CPU Speed: 3.5 MHz

RAM: 1K

ROM: 8K

Resolution: 64x48 (24 lines x 32 characters) – also capable of 256x192

Colours: Monochrome

Sound: None

Retail Price: £69.95 ready built (£49.95 in kit form)

Release Date: 1981

Why the ZX81 was great: It was cheap as chips; a physical checklist of fixed problems and subtle tweaks to the ZX80, with 30 quid shaved off the price. "Why not buy a ZX81?" was the motto of bedroom programmers everywhere.

IT'S BEEN SAID THAT THE ONLY DIFFERENCE BETWEEN STUMBLING BLOCKS AND STEPPING STONES IS THE WAY YOU USE THEM. FOR SINCLAIR RESEARCH, THE SHORT-LIVED ZX81 SERVED ITS PURPOSE AS A STEPPING STONE TO THE ZX SPECTRUM SUPERBLY, AND PROVIDED A SOLID PATHWAY INTO THE WONDERFUL NEW WORLD OF HOME COMPUTING FOR A GENERATION OF GAMERS

It was only on the shelves for two years, but the ZX81 made a significant – if dichotomous – impact between 1981 and 1983, inaugurating a huge number of curious technophiles into the previously prohibitive world of home computing. Without this ostensibly minor upgrade to the ZX80, the extraordinarily prolific 8-bit revolution that quickly followed might well have known a significantly smaller congregation.

When discussing historical relevance it feels somehow trite to reduce matters to monetary concerns, but in the case of the ZX range of computers, the price tag genuinely was a momentous achievement for Sinclair Research. Home computing in the late Seventies and early Eighties presented a monumental financial investment that was entirely supported by a niche customer base. Computers weren't the necessary, easily justifiable home appliance they are today, so anyone wanting to dabble in the new world of amateur code had to dig deep into threadbare pockets to satisfy their curiosity.

While other manufacturers vindicated their product's astronomical costs with impressive, bullet-pointed lists of powerful processing capabilities, Uncle Clive aimed to astonish with a simple, lightweight price tag, and it was this distinctly British philosophy that put the ZX80 – the first machine to crack the £100 price barrier – into so many homes only a year before the ZX81.

All the astute pioneers in the computing and videogaming world during this embryonic phase knew the importance of affordability. Silicon was electronic gold, and if computer designers wanted to reduce costs they had to lighten the loads on their PCBs. At precisely the same time as Sinclair Research was pouring its talents into ridding itself of excessive hardware, across the Atlantic Nolan Bushnell was offering huge incentives to Atari's designers to reduce chip count in new games. It was exactly this line of minimalist thought that had prompted Steve Wozniak to reinvent *Breakout* and to create the Apple computer. It was no coincidence that those early campaigners made such a massive impact on the future of domestic computing and gaming; they all paid careful consideration to our wallets.

Steve Vickers, designer of the improved ZX81's 8K ROM, vividly remembers just how important this business model was at Sinclair Research, and told us what it was like during those early days around Clive Sinclair's offices.

"It was interesting to see the commercial pressures that drove the products. Launch dates were very important," he begins. "The dates were those of particular exhibitions, and this meant that the deadlines were fixed externally. Hardware design was largely governed by using every possible, and often ingenious, means to reduce chip counts and production costs. Clive himself was exquisitely alert to these issues, and in a sense the nature of the actual product was secondary to him."

This was the real, hidden strength of the ZX81 over its chip-heavy predecessor, and the reason it was an admittedly underpowered, yet

INSTANT EXPERT

Less than a tenth of the cost of the Apple II on its launch, the ZX81 was, proportionally, the most affordable home computer ever produced.

The ZX81 used a proprietary form of BASIC, so costs were reduced as no licence fee went to Microsoft.

Programs and games could be saved and loaded through a standard cassette tape recorder – something the ZX80 was unable to do.

A unique, 'spark' (not thermal) printer was available that used black, aluminised paper to zap the text on to. Just like the computer, this was cheap and cheerful.

By cleverly confusing the ZX81 programmers have devised ways to 'trick' the system into providing a high-resolution display of up to 256x192 – even though Clive Sinclair had initially said that it was impossible.

Solder-happy punters could save themselves £20 quid by purchasing the ZX81 in kit form and assembling it themselves.

Third-party developers released additional add-ons, including memory packs up to 63K, and graphics and sound modules.

Although not really reflected by the profits Sinclair Research recorded, the ZX81 sold around 1,000,000 units worldwide. They didn't all work, unfortunately.

A chess program was written that ran comfortably within the limited 1K of RAM – one of the smallest examples of a chess program ever seen.

The ZX81 could multiplex between the display and running a program – solving the ZX80's problem with a flickering screen.

RETROINSPECTION

SINCLAIR ZX81

» The thin PCB was all there was to hold the peripherals in place – no wonder the RAM pack enjoyed such a free lifestyle.

» The ZX81 in its cheaper, less cheerful (unless you're into soldering) form

» Although the ZX80 had its charms, the black ABS casing of the ZX81 was a big hit among design-conscious technophiles of the day.

highly accessible computing warhorse. While the ZX80 housed over 20 different ICs under its thin plastic skin, the ZX81's brainpan was emptied of all but four vital chips, one of which was a custom IC compiling the majority of the ancillary functions into one slab of silicon. Of those four digital workhorses, the ROM was perhaps the only one that remained almost completely unaltered, though its development continued with a doubling of capacity up to a whopping 8K. As the man behind the re-engineering of the ZX81's nervous system, Steve explains not only the advancements of the ROM, but its intricate similarities to its parent's

"John Grant's 4K BASIC for the ZX80 was a miracle of compaction," he says. "As far as possible I left its design and code intact and added the new ZX81 features to it in a modular way. I started by learning the Z80 assembler, which I'd never used before The first task was adding a floating point maths package, which was big but fairly self-contained. I had to do some research into the Chebyshev polynomials I used for calculating functions, and devised a stack-based internal language to describe the algorithms This was both compact and easy to program compared with raw assembler code That was when I had to begin to understand the old system better in order to see how it needed modifying to integrate it with the old ZX80 system."

While Steve might speak a language better understood by an EPROM burner, it's easy to decipher that Sinclair Research had found precisely the right man to increase the capabilities of this new system. Indeed, Steve rather astutely approached the augmentation of the ZX franchise precisely as Clive intended to sell it – by way of upgrade and home industry

It's fair to say the ZX81 was an upgrade, rather than a successor This isn't the criticism it appears to be, however, since that was precisely the design brief Sinclair Research had drawn up. After all, it'd go completely against the economic nature of the ZX range to ask people to replace a 12-month-old computer. Steve told us about the ZX81's ROM design process that was carried over into the marketplace

"One design remit was that the ZX81 ROM should also work as an upgrade in the ZX80 hardware. In essence, the brief was to make a cheaper ZX80 with display *and* computing capabilities and floating point maths. Other additions included more versatile graphics for printing and plotting at specified places on screen, multi-dimensional and string arrays, substring operations, software to drive the Sinclair printer, miscellaneous enhancements to the BASIC and anything else useful that would go in the extra 4K of ROM," says Steve

Sinclair's already happy punters could buy the massive new 8K ROM along with the slightly altered replacement keyboard membrane. While it didn't solve all the shortcomings of Sinclair's first ZX computer, the upgrade option was well received, and worked particularly well, since the ZX81 had been deliberately designed to operate this way

"To test the code I'd blow it into EPROMs and plug it into the hardware. Eventually we used the ZX81 hardware as it reached a working level of its development, but initially we used a ZX80 to test the new ROM out," Steve explains

Unfortunately, this upgrade didn't solve the ZX80's issue with simultaneous computing and displaying. Or lack of it, to be more precise – causing a screen flicker every time the laboured processor took an input or ran a program The ZX81 managed a suitable workaround of the problem by allowing programs to run during the frame return period when the display – being your old Bakelite telly – was refreshing, and also during the blank top and bottom 'borders' phase of the display driver While this essentially didn't fix the problem, it did prove to be an ingenious method of multiplexing the industrious Z80 processor and giving users the illusion of simultaneous display and computing without the seizure-inducing screen blanking that made its predecessor so 'special'

Naturally, this resource sharing slowed the processor quite considerably, despite making the monochromatic screen look a lot better during use. The ZX81 was a limited system even by 1981's standards, so gaming was never really an intended function and full programmer access took greater priority than entertaining casual users. Therefore, it was reasonably concluded that hackers should have a choice as to pretty displays and full processing power, so the ZX81 incorporated two methods of operation – esoterically named FAST and SLOW

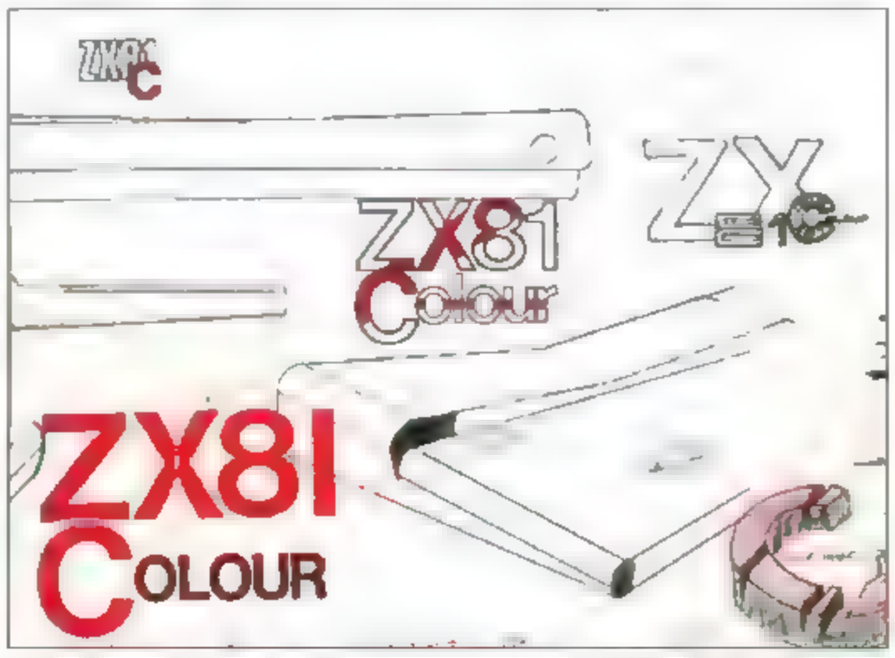
FAST put the Z80 processor to use in the same method as the ZX80 – blanking the display so it could dedicate itself to calculating, while SLOW multiplexed the required operations between video and software. While it eased the eye strain of regular coders, this wasn't a particularly significant modification to the ZX lineage, though the inherent reason for including this option *was* significant. Few computers have been made that allowed such unrestricted access to every single function as the ZX81, and inspired programmers soon found alternative use for many of the machine's processes

The ZX81 had no audio capabilities, though it's unwise to add a full stop after that 'fact'. Early in its life, some surgical code boffin realised that by switching rapidly between FAST and SLOW modes, tones could be induced into the television signal, creating a basic

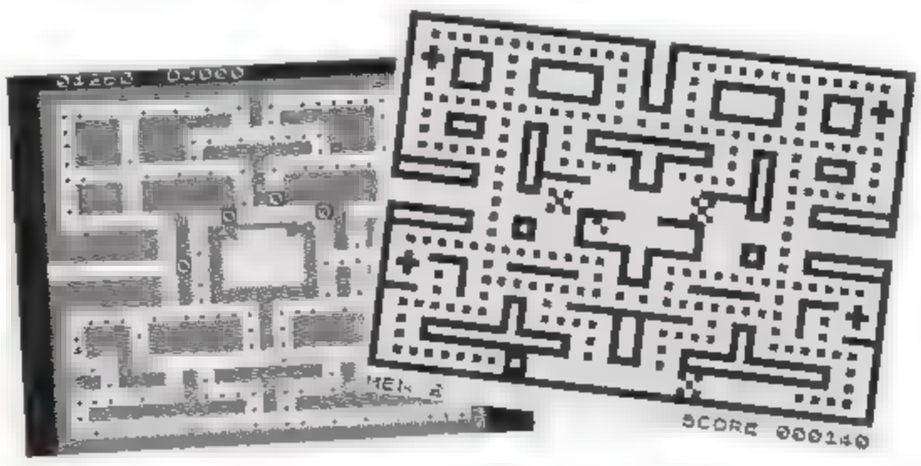
"AS THE US VIDEOGAME MARKET DISAPPEARED UP ITS OWN... CARTRIDGE SLOT, BRITISH CODERS SIMPLY CHOSE THEIR NEW WEAPON OF CHOICE: SPECTRUM, COMMODORE OR AMSTRAD"

Time For Timex

The US was *the* market for home computers, and Americans were seemingly happy to throw whopping amounts of green around to get the right system. Sinclair got a taste of the transatlantic potential through international mail order and realised that a local licensee was required. Since American computer giant Timex was already assembling Sinclair machines at its plant in Dundee, it was the natural choice The first system to bear the Timex/Sinclair hybrid brand was the TS1000, a ZX81 with double the memory, an astronomical 2K! Although the launch was a massive success on paper, selling in numbers that dwarfed Commodore, Apple and Tandy sales figures, posting out the ZX81 to code-hungry Americans had significant drawbacks. The lack of support, gremlin-infested quality control and long, hostile journey meant that only a third of Sinclair's computers actually arrived in operational condition. Reputation meant everything, and Sinclair's was tragically shot when it landed on US shores



» Before it became the Spectrum, the revolutionary upgrade to the ZX81 was to be known as the ZX81 Colour, as this early design concept shows.



» In 1981 no computer system, console or arcade was complete without *Pac-Man*, although the unofficial clone, *Glooper*, was a better rendition on the ZX81

COMMUNITY – THE BEST ZX81 WEBSITES

Planet Sinclair
www.nvg.ntnu.no/sinclair/
Not only a great place to learn more about the ZX series of computers, their peripherals and localised alternatives, Planet Sinclair is also a well-presented repository of all things to do with Uncle Clive, from calculators and mini-TVs to electric bikes and the man himself

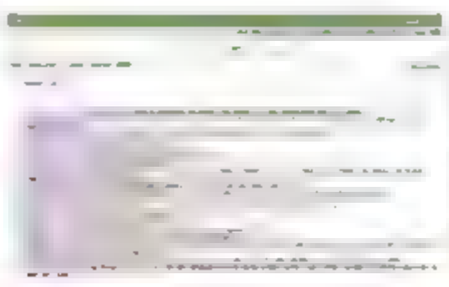
A Profound Journey
www.apj.co.uk/zx81/zx81.asp
Although not specifically a Sinclair website, a reprint of a 1981 article from *Personal Computing World* can be found here. The magazine article features an in-depth test and review of Clive's new machine that provides a superb window to what people expected of the ZX81 on its release

Open Directory Project
www.dmoz.org/Computers/Systems/Sinclair/ZX81/
Although it's tempting to make more specific mention of the websites here, it'd be a lot more useful to post this links list for anyone wanting to uncover the ZX81's presence on the web. Some links aren't maintained, but you should still start here

ZX81 Stuff
www.zx81stuff.org.uk
Simon Holdsworth's neat website is his own personal shrine to Sinclair's machine and features a great many items from his very own collection. If that wasn't enough, it's even possible to play a great many games using a Java-based emulator, just like on World of Spectrum

The ZX81 +2
What good is a home computer without the vital add-ons that made the machine live up to the inevitably optimistic hype of its own adverts, and to the end the ZX81 had a particularly indispensible accoutrement.

While the infamous 16K RAM pack expanded the horizons of the ZX81 exponentially, the physical presence of the memory unit caused significant brain-ache for users. With easily corroded solder-coated contacts and no other physical support, the slightest nudge could cause a poor connection and loss of work – and even a blown motherboard. Sinclair's own product support suggested the use of Blu-Tack or electrical tape as an official fix.



sound synthesiser. Essentially, this was controlled interference, but it became the primary use of the two processing modes.

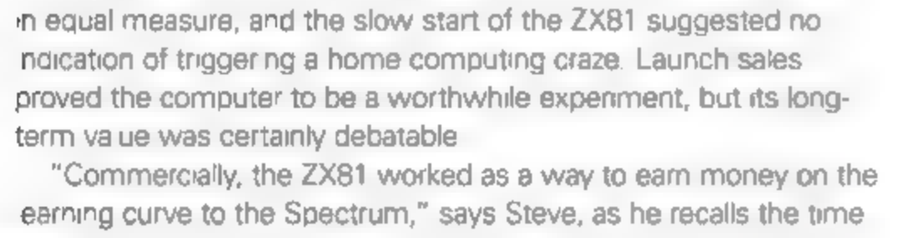
In hindsight it's not entirely obvious what Sinclair Research wanted to achieve with the ZX81. It might not have reached the lofty market penetration of the consoles of the day, but for a product that saw a limited sales push and equally limited after-sales support, it begins to draw a picture of a machine that provided a learning curve stanch on rather than a culmination of computer development.

As Steve Vickers still vividly remembers, Clive Sinclair boasted far-reaching vision and wasn't a man to dedicate himself to chasing pound notes. "At first I was shocked to discover that Clive had no interest at all in being able to use the Sinclair computers himself. 'I don't know how to drive one of those things,' he'd say. But that was how the company worked. He relied on being able to gather other people who could take care of those issues," says Steve.

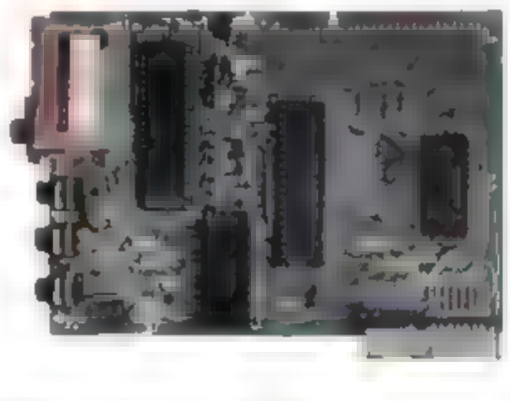
Sinclair Research had always skirted around the circumference of colossal success, never quite achieving the kind of corporate enormity that other, usually US-based, computer companies had managed. Therefore, each product was a test of promise and risk in equal measure, and the slow start of the ZX81 suggested no indication of triggering a home computing craze. Launch sales proved the computer to be a worthwhile experiment, but its long-term value was certainly debatable.

"Commercially, the ZX81 worked as a way to earn money on the learning curve to the Spectrum," says Steve, as he recalls the time when Uncle Clive's third computer hit the shelves. "The ZX81 still had obvious deficiencies – the picture was black and white with very blocky pixels, it was slow if it had to compute while displaying, and the 1K RAM was tiny even by the standards of the day – so I don't think it was ever seen as a long-term product."

Steve makes an excellent point, and essentially captures the essence of what made the ZX81 so great. It *wasn't* a particularly impressive computer, but it did epitomise the forthcoming technology revolution. Despite a less than extraordinary specification, the very reasonable price tag and alluring system accessibility made it an easy and risk-free introduction to programming for the inquisitive technophile. By 1982, this simple appeal of low-cost experimentation had increased Sinclair Research's profits eightfold but, far more importantly, it was also proving to be the vital education for both the manufacturer and the user that would launch the next phase in home computing.



» It might be an unwholesome travesty, but it's not impossible to see from the shape why disgruntled ZX81 users found alternative use for their computer when the door wouldn't stay open.



» The ZX80 Lite. This is the ZX81's incredibly neat PCB after the custom chip replaced the majority of silicon on its predecessor's motherboard

"If you wanted to write letters and do accounts on a computer, the ZX81 was not your best buy. But as something really cheap that would let you play with programming – a kind of software version of a Meccano set – there was nothing to touch it. I personally found it really useful for numerical calculations that I needed to do while working on the Spectrum ROM," explains Steve. "So I suppose I found it good for what computers were invented for: numerical work."

As the US videogame market disappeared up its own cartridge slot, the British code junkies shrugged their shoulders without concern. Consoles were dead, but we now had affordable, accessible home computing to fall back on, so we simply and organically chose our new weapon of choice; be it Spectrum, Commodore or Amstrad. For those of us looking to play with a bit of code and enjoy a bit of gaming on the side, it really was as simple and casual as that.

» The aluminised paper might have been a bit of an inconvenience, but the ZX81's printer was a compact and efficient piece of kit

But it is thanks to stalwart, unsung heroes like the ZX81 and its pioneering developers that home computing had already moved beyond novelty to become an integral part of working-class life, so show a little respect next time you need to wedge a door open and use an Atari 2600 instead, eh?

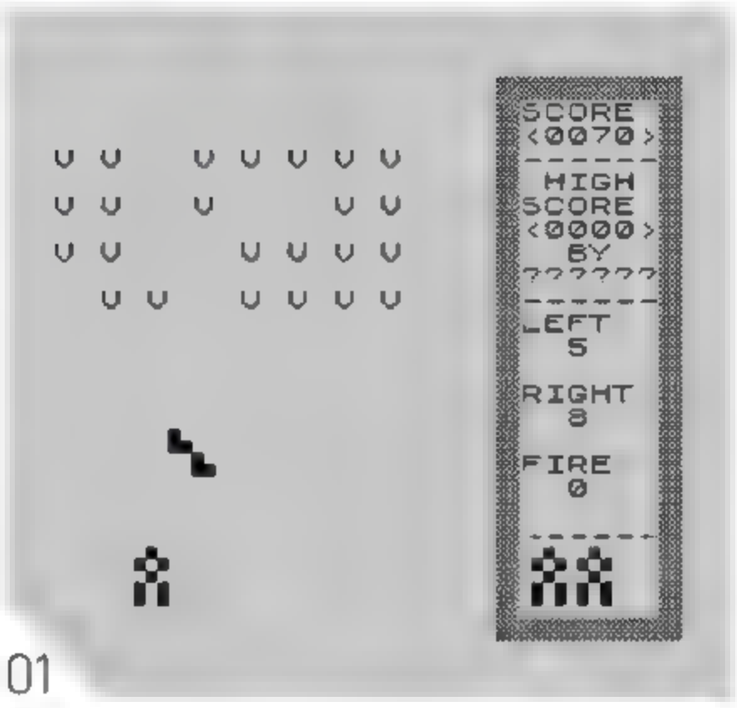
» Picking up commercial games for the ZX81 wasn't easy, but there was a ton of programming books that played to the real purpose of Clive's awesome little machine

» The ZX81 programming bible was written by the ROM programmer, Steve Vickers. Check it out in its entirety here: www.worldofspectrum.org/ZX81BasicProgramming/

SINCLAIR ZX81

PERFECT TEN GAMES

Be it ever so humble, there was nothing quite like the ZX81. So, to celebrate this early home computer, we've chosen ten of its greatest games for you to enjoy



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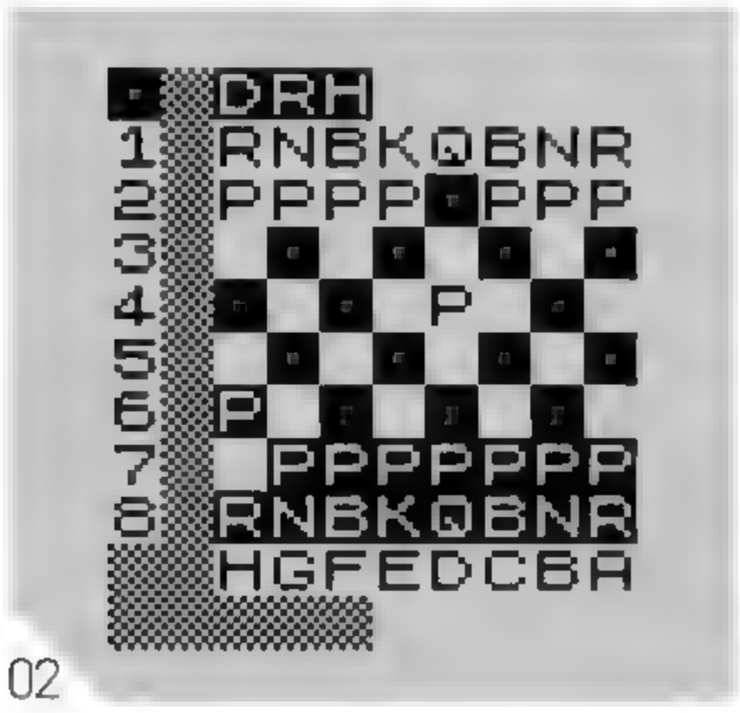

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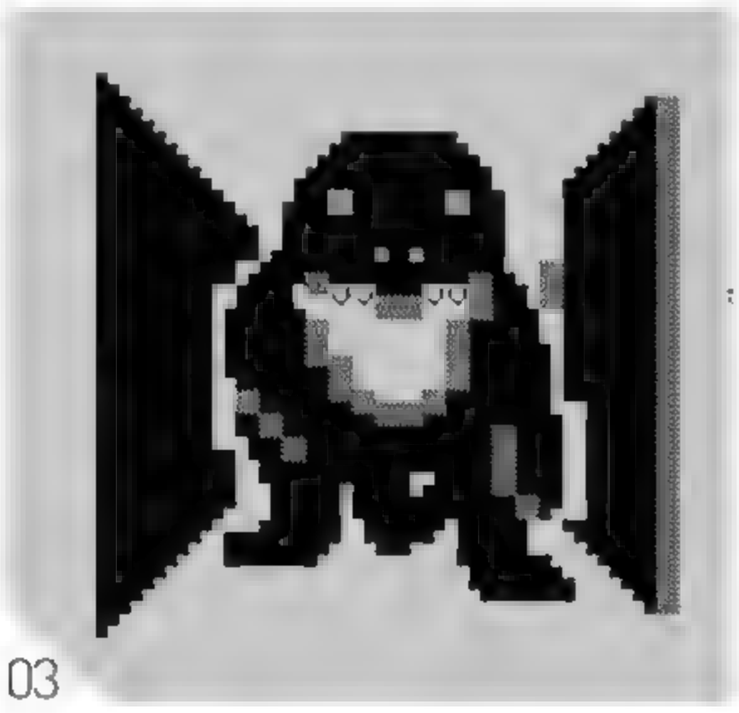

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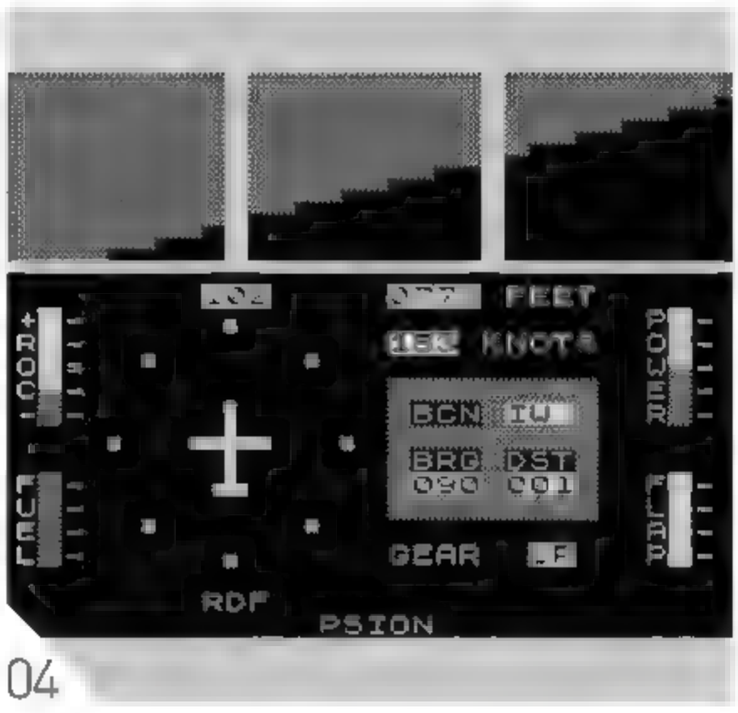


04

GALAXIANS

- **RELEASED:** [illegible]
- **PUBLISHED BY:** Artic
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** GALAXY WARRIOR

01 There's a slew of *Space Invaders* and *Galaxian* clones available on the ZX81 – hardly surprising when you consider the massive popularity of them – but this conversion of *Galaxian* by Artic is easily one of our favourites. The action is absolutely relentless and you'll have your hands full dodging the many flying enemies and the hail of bullets they constantly bombard you with.

Granted, it lacks the same attack patterns from the original game, but, in a way, the complete randomness of the alien attacks simply adds to the excitement, as you never quite know what to expect. This is a superb clone of the hit coin-op and is definitely worth tracking down if you love a good blaster.

1K ZX CHESS

- **RELEASED:** [illegible]
- **PUBLISHED BY:** Artic
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** ESPIONAGE ISLAND

02 Considering the sheer number of potential moves available in chess, we're amazed to find it so well replicated on the ZX81. Created with less than 1K of RAM, you can play it without the need for a RAM pack. Okay, so certain rules – queening, castling and en passant capture – didn't make the cut, but this is still a resoundingly solid effort and proves just how talented early coders – in this case, David Horne – actually were.

The computer AI takes a fair amount of time to plan all of its moves, but the actual game itself plays a pretty good game of chess, so you can forgive it for the lengthy pauses. A solid adaptation of the classic strategy game.

3D MONSTER MAZE

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

03 Survival horror may have been a phrase first coined by *Resident Evil*, but it could have easily applied to Malcolm Evans' massive hit. Boasting sensational visuals and an incredibly slick maze, traversing the huge labyrinth was truly terrifying and scared a generation of gamers.

It may have sported a paltry 16K of RAM and no sound, but *3D Monster Maze* remained an amazingly atmospheric title which, in a way, was elevated by its clumsy control system that saw all the arrow keys laid out on a single row. An instant classic that, even today, remains a mind-blowing experience. Perfect proof that you don't need state of the art visuals to create a truly great game.

FLIGHT SIMULATION

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

04 Ask people about their favourite ZX81 game and *Flight Simulation* almost always charts highly – usually in the number one spot.

Maybe it's because you'd sit there making engine noises as your plane flew towards its landing strip, but we'd say that it was mainly due to the fact that it simply looked astonishing on a machine that normally required you to guide an asterisk through a simple-looking maze. While it was possible to just play the exhilarating final approach, it was just as fun to simply take to the skies – you could add wind for an extra challenge – and fly around to your heart's content.

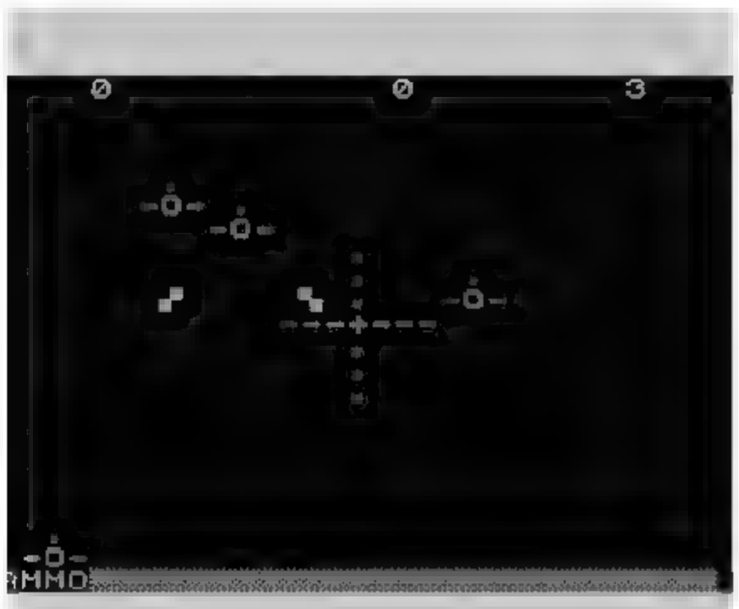
NIGHT GUNNER

- **RELEASED:** 1982
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** DIGITAL INTEGRATION
- **BY THE SAME DEVELOPER:** ALIEN INVASION

05 Who would have thought that a game made entirely of '–' and '0' signs could turn into one of the ZX81's most enjoyable games? No, we wouldn't have thought so either, but replaying the wonderful *Night Gunner* reaffirms that this is exactly the case.

Moving at a very impressive speed, you fly through the air taking out as many enemy planes as you can before your ammo runs out. Like many ZX81 games it's incredibly simplistic to look at, but our active imaginations easily saw those basic characters as magnificent planes plummeting earthwards as we filled them full of lead. A solid shooter that gave you plenty of bang for your buck – even if you couldn't hear the bangs.

PERFECT 10



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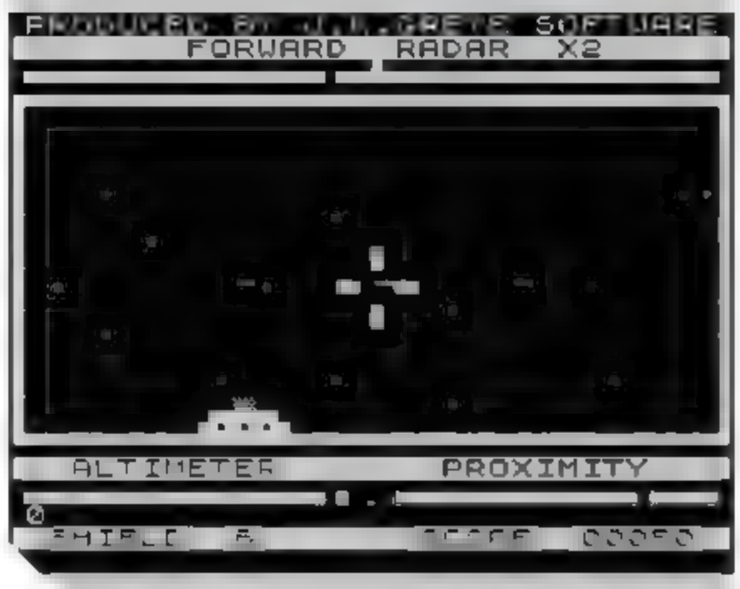

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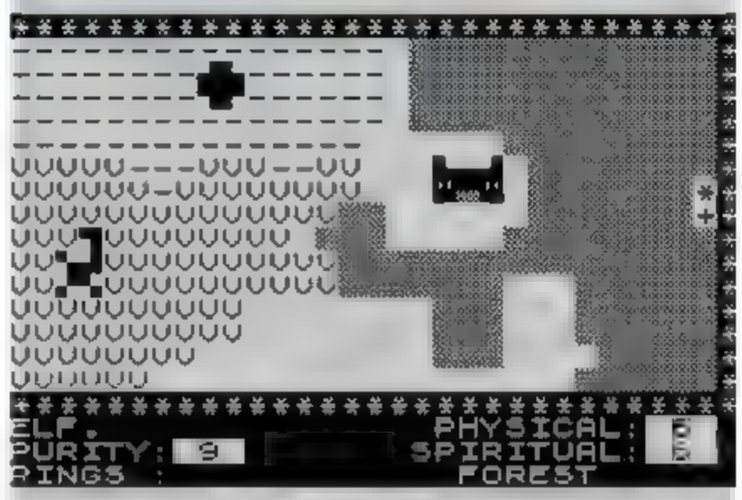

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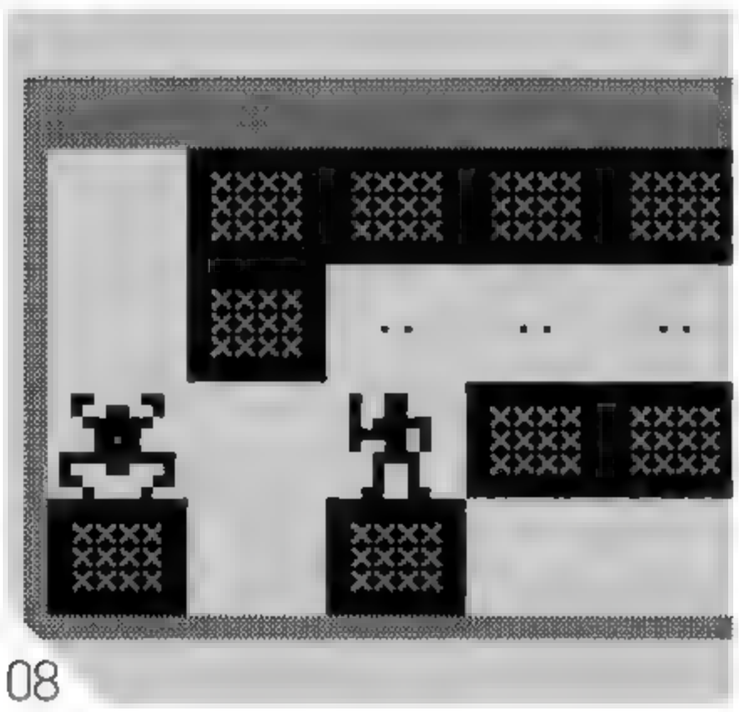

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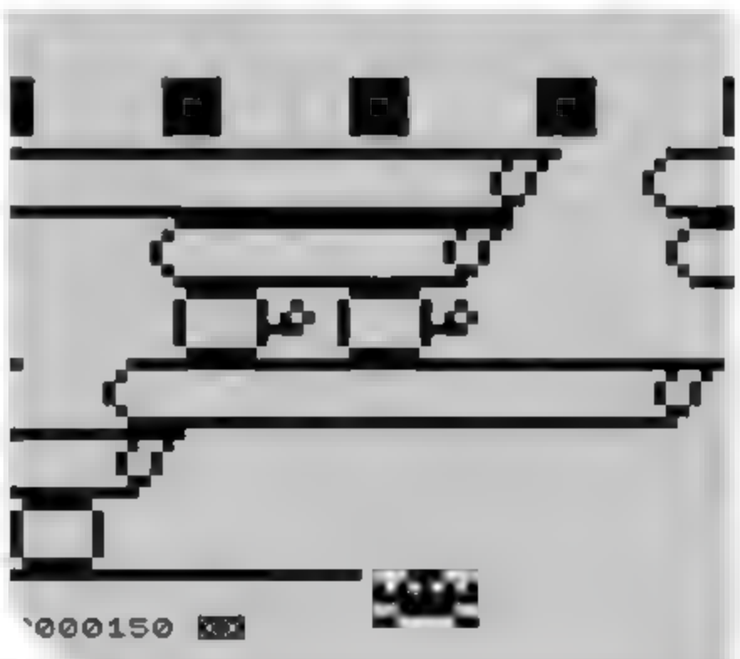

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10

3D DEFENDER

- **RELEASED:** 1981
- **PUBLISHED BY:** JK GREYE
- **CREATED BY:** JK GREYE SOFTWARE
- **BY THE SAME DEVELOPER:** BREAKOUT

06 Like *Night Gunner*, *3D Defender* has you controlling a pair of crosshairs and trying to gun down as many enemies as possible. Unlike *Night Gunner*, however, *3D Defender* is set in space and features some absolutely massive UFOs that really do scare the absolute bejesus out of you as they zoom in and out of your view.

It's certainly a lot trickier to control than *Night Gunner* – you'll spend your first few goes crashing into the ground at every opportunity and the collision detection is rather iffy – but once everything clicks you'll discover a title that's just as much fun and a hell of a lot slicker. And you really have to see those UFOs. Fantastic stuff.

BLACK CRYSTAL

- **RELEASED:** 1983
- **PUBLISHED BY:** CARNELL
- **CREATED BY:** CARNELL
- **BY THE SAME DEVELOPER:** VOLCANIC DUNGEON

07 Not to be confused with the Jim Henson movie starring ugly puppets, *Black Crystal* is a great graphic adventure that sees you traversing a variety of different environments to destroy the gem of the title. Spread across six impressive-looking mains you're given a variety of tasks ranging from retrieving keys to fighting dragons.

It's a very entertaining romp that plays up well to the strengths of the ZX81 and delivers an immersive experience that many other adventures on the machine simply can't match. It's a little fiddly in places, and it's all too easy to die, but the gripping gameplay will constantly push you forward for one more go.

MAZOGS

- **RELEASED:** 1982
- **PUBLISHED BY:** SINCLAIR
- **CREATED BY:** DON PRIESTLEY
- **BY THE SAME DEVELOPER:** MANIC MINER

08 When Don Priestley's *Mazogs* appeared on the ZX81, it's fair to say that its arrival was something of a revelation. Featuring absolutely huge characters and set in a massive maze, it was an incredibly slick release that made virtually all its peers look absolutely archaic.

With so many maze games featuring dollar signs being chased by asterisks, the huge sprites of *Mazogs*, created by the Sinclair Sugar Cube Graphics, certainly left an impression on people. Luckily the game was just as good as its visuals, and many ZX81 owners will no doubt fondly remember hurtling through the huge mazes, picking up treasures and using their sword to battle the evil Mazogs.

FROGGER

- **RELEASED:** 1981
- **PUBLISHED BY:** ADVENTURE INT
- **CREATED BY:** CRAIG FOREA
- **BY THE SAME DEVELOPER:** N/A

09 We've raved about this early arcade conversion of *Frogger* in the past, but here's another reminder as to why it's so great. First released in 1981, *Frogger* is not only an incredibly faithful conversion of the popular coin-op, but it also pelts along at a fair old speed.

Honestly, you'd be forgiven for thinking it's running on another, far more technically capable machine. Granted, the original arcade screen has been split into two – the first section has you crossing the road, while the second sees you hopping across the water to your pad.

But this is otherwise a fantastic conversion that proves just what feats were possible on the humble home micro.

THE GAUNTLET

- **RELEASED:** 1985
- **PUBLISHED BY:** MACMAN
- **CREATED BY:** COLOURMATIC
- **BY THE SAME DEVELOPER:** N/A

10 Considering the rather flaky processor beating away inside the heart of the ZX81, it has churned out a fair few nippy shoot-'em-ups in its time. *The Gauntlet* is a perfect example, and while it's nothing we've not seen before – it's basically a clone of Konami's excellent *Scramble* – it is a very slick product that manages to push all the right buttons.

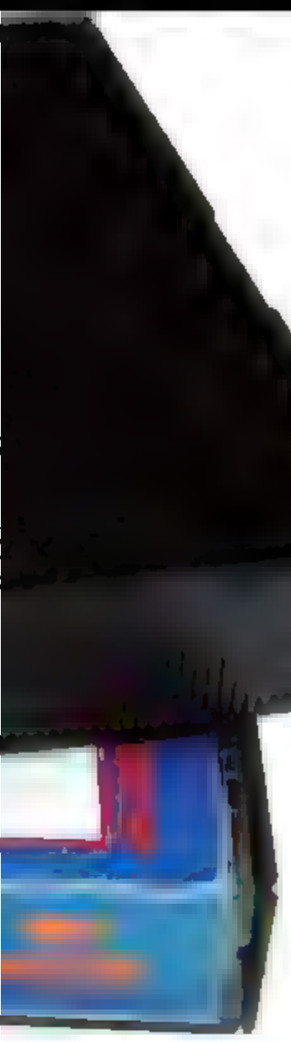
It certainly takes quite a while to get used to the huge size of your spaceship, but once you've worked out all of the controls you'll soon be shooting and bombing enemy emplacements with ease. It does get ridiculously tough as the game progresses, but if you're looking for a classy blaster you'll be hard-pressed to find anything better than *The Gauntlet*.

Year released: 1981 **discontinued:** 1986

BBC Microcomputer Model A - 16K RAM
Original price: £235
Max screen resolution: 320x256 pixels (Mode 4)

BBC Microcomputer Model B - 32K RAM
Original price: £335
Max screen resolution: 640x240 pixels (Mode 0)

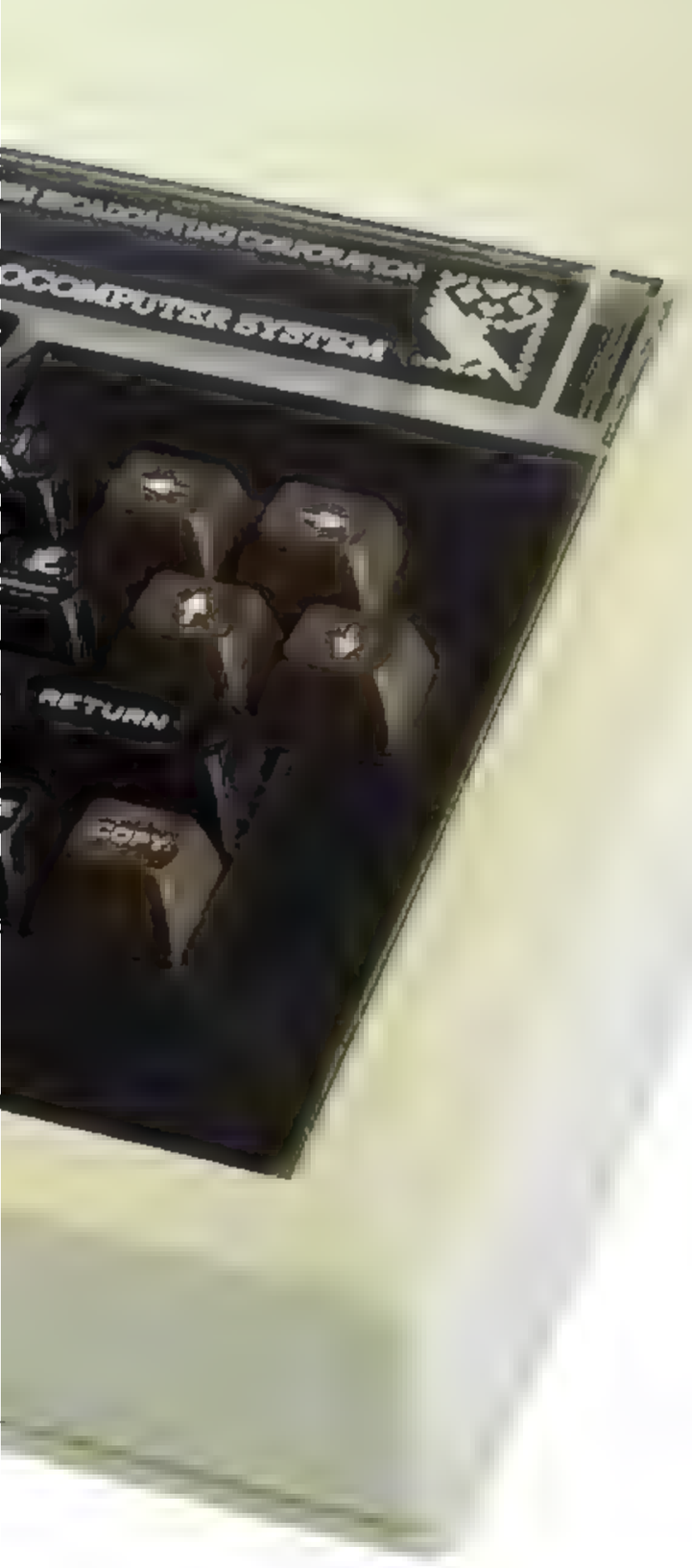
6502 processor running at 2 MHz OS: BBC BASIC housed in 32K ROM Tape interface by default, optional floppy disk interface available. Four sound channels: 3 melodic, 1 noise. The Tube interface offers additional processor to be added. Compatibility with Acorn Econet



RETROINSPECTION

BBC MICRO

LEGAL WRANGLINGS, PLAGIARISM, FINANCIAL RUIN, ARSON... WHO SAID THE BBC MICRO WAS JUST A TOOL FOR SCHOOL? STUART GOODWIN LOOKS BEYOND THE CLASSROOM AND FINDS AN OFTEN MISUNDERSTOOD CLASSIC, AS WELL AS SOME OF THE BEST GAMES OF ALL TIME...



The story of the BBC Microcomputer can be traced back to a number of unexpected locations, most notably one of Sir Clive Sinclair's companies, the warehouses of a Welsh fruit machine manufacturer, and even a cattle shed in Harrogate. Since 1966, Chris Curry – an employee of Sir Clive Sinclair – had worked behind the scenes for Sinclair Radionics, developing a number of products including calculators and wristwatches, as well as a pre-Sinclair C5 electric car. Following financial problems Sir Clive shifted focus from Radionics and encouraged Curry to work for another of his companies – Science of Cambridge (SoC). SoC would later become Sinclair Computers Ltd. Curry's own focus shifted to microcomputers and, in particular, a microcomputer kit that SoC had developed. Sinclair however, failed to back further development of the kit and, in December 1978, Curry formed his own company alongside a friend Austrian-born physics graduate Hermann Hauser. Their new venture, Cambridge Processor Unit (CPU), quickly found a customer in Ace Coin Equipment Ltd, for whom it designed fruit machine controllers. The following year, CPU became Acorn Computers Ltd.

In 1979, Acorn's first Microcomputer, the System 1, was launched, designed by computer scientist Roger (now Sophie) Wilson. Back in 1977, Wilson had designed a sophisticated automated cow feeder, based around a 6502 processor, for a farm in Harrogate. "The cow feeder led directly to the System 1," Wilson recalls. "Hermann wanted someone capable of building an 'electronic pocket book' – we might call it a PDA now. I showed him the designs for the cow feeder, and for my own computer, and he challenged me to build it."

Systems 1-5 were designed primarily for engineering and laboratory use. By 1979, however, Sinclair was working on the ZX80, and Curry pushed for Acorn to turn its attention to the home computer market severing his remaining ties with Sinclair in the process. The first fruits were The Atom in 1980. "This was a time when you were expected to be able to solder in order to use a computer – most machines came as kits," says David Braben, co-author of *Elite*. The basic Atom, featuring 2K of RAM, sold in kit form for £120, or, for £50 more, ready assembled, while an expanded model featuring 12K was also available. "For its time it was a fantastic machine," Braben continues, "one advantage of the kit mentality was that machines had very open designs – circuit diagrams were freely available – and so expanding in unconventional ways was quite practical. Pretty soon my machine was twice the original speed, and had 48K of RAM!" One notable feature of the Atom was support for Econet, Acorn's local area network, which allowed 250 computers to be networked together.

The machine was considered a relatively successful entry into the market for Acorn. However, some of the technical staff within Acorn

INSTANT EXPERT

The working title for the BBC Micro was Proton.

The computers took the name 'BBC' as the computers were used at the heart of the corporation's Computer Literacy Project.

Other computers in the running for the BBC contract included the Grundy NewBrain.

Two models of the BBC Micro were launched in November 1981 – Model A, priced £235, and Model B, priced £335.

The BBC Micro is powered by a 6502 processor. This processor also powers the Commodore PET and VIC-20, as well as the Atari 400 and 800.

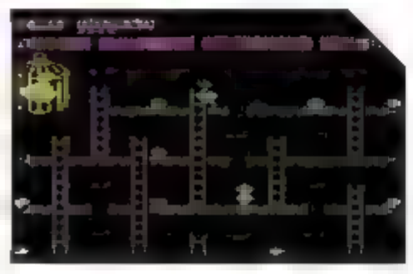
A second processor can be added to the BBC Micro via an interface called The Tube which significantly boosts the computer's performance.

A cut-down version of the BBC B – the Electron – was launched in August 1983, priced £199.

Problems with supplying adequate numbers of Electrons for Christmas 1983 placed Acorn under severe financial pressure.

The BBC B+ launched in 1984 which featured double or even quadruple the amount of memory found in a standard BBC B.

Acorn was eventually taken over by Olivetti in 1985, and released its final 8-bit computers – the Master series – in 1986.



BBC MICRO

» This press pic conveyed to consumers that, with the BBC B, the sky really was the limit

were unconvinced. "We simply didn't like the chips in the Atom," says Wilson, "in particular the MC6847, which was an NTSC-only video chip." By the time the Atom launched, Acorn was already hard at work on its next machine, the Proton. "The Proton had been in development before the Atom conceptually," Wilson continues 'though the impetus to start it as a real project only came after the Atom was financially successful."

In 1981, BBC Education launched the Computer Literacy Project, revolving around a ten-part television series. "The aim of the project is to introduce interested adults to the world of computers and computing," said the press release, "and to provide the opportunity for viewers to learn through direct experience how to program and use a microcomputer" The BBC wanted to build the project around a machine capable of performing a multitude of tasks, which could then be used to demonstrate the fundamentals of computing on TV, and contacted several British-based computer companies. Several computers were considered, most notably the Sinclair-affiliated Grundy NewBrain, as well as Acorn's own Proton. "The project only gained real momentum with the impending visit of the BBC people

» If you were going to treat yourself to a BBC Computer, then this expansive pack was surely the one to go for

THE LINK-UP WITH THI
SUMMARISED THE BBC COMPUTE
WE

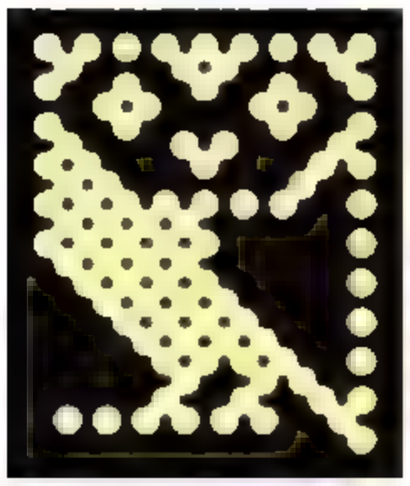
to see a Proton prototype – which didn't exist at the time," recalls Wilson. "We had a week to build it."

Despite the tight time frame, the prototype was up and running within a week, and impressed the BBC representatives sufficiently to ensure Acorn obtained the high-profile link-up. "I guess we got the contract partly because what we were building anyway was close to what they wanted, and partly because they saw that our engineering was good enough to make it happen," says Wilson What had been known as the Proton hit the shelves in November 1981 as the BBC Microcomputer System, just like Systems 1-5 and the Atom, another computer based around the 8-bit 6502 processor found in Wilson's cow feeder

Two different flavours of the BBC Micro were initially available the 16K Model A, and the 32K Model B, launching at £235 and £335 respectively. Demand outstripped supply, however, and increased production costs soon caused these prices to rise to £299 and £399. "A BBC Model A was the first computer I owned," recalls Gary Partis, author of several games including *Psycastria* and *Sphere Of Destiny*. "It was a Christmas present in 1981, which didn't get delivered until March 1982." The Model B soon emerged as the bigger seller of the two, and many Model A users eventually invested in Acorn's A to B upgrade option on the cheaper model

The BBC Micro saw the first outing of Wilson's excellent BBC BASIC, a powerful but simple language, which provided many users with their first exposure to computer programming "BBC BASIC is a compromise between my advanced interpreter of the day and the BBC's desire to keep the language 'standard'," continues Wilson "It felt significant at the time – a fast BASIC which was convenient to

» For all lovers of the BBC Micro – and a bit of extra publicity for Micro Power to boot



» This symbol for the BBC Computer Literacy Project was found on all BBC Micros.

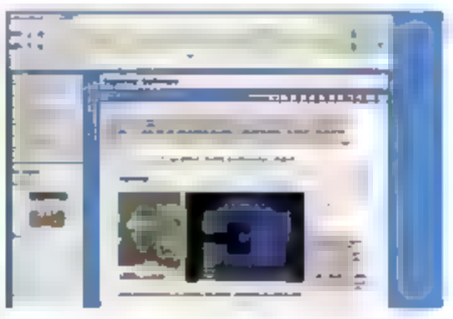
COMMUNITY - THE BEST BBC WEBSITES

Stairway To Hell
www.stairwaytohell.com
The most vibrant BBC and Electron site on the web It has an active forum, plenty of interesting articles and an excellent 'Lost & Found' section, telling all about recently unearthed gems It also has scans and interviews aplenty, as well as links to emulators, clones and remakes of classic Acorn titles

Acorn Electron World
www.acornelectron.co.uk
Disk images galore, including the archives of *EUG*, a disk-based BBC and Electron magazine that originated in 1991, chock-full of demos, reviews, utilities, remakes and originals. The site also contains demos and games from the BBC PD archives, as well as comprehensive scans of every issue of *Electron User*

The BBC Games Archive
www.beebgames.com
Comprehensive site detailing almost every game released on the BBC. Thankfully, it's not just talk, though – there's also plenty to play, including unreleased games and demos Particularly of note is the high-score section – think you can beat 1,026,690 for *Chuckie Egg*?

The BBC Lives!
bbc.nvg.org
Sadly, it's been several years since this website was last updated, but The BBC Lives! remains a tremendous resource for would-be bedroom programmers, featuring, as it does, an awe-inspiring array of manuals and documentation, as well as emulators, games, utilities and much, much more



» Geoff Crammond's *Space Invaders* clone, *Super Invaders*, kick-started his involvement with the BBC

use, with many advanced features.' Other innovations in the BBC included an interface known as The Tube, which enabled a second processor to be added to beef up the computer's power.

Thanks to the link-up with the broadcaster, the BBC computers were a considerable success in the education market. In addition, sales were bolstered thanks to an initiative started by the Department of Education and Science, which allowed local education authorities in the UK to obtain computers at discounted prices. While other computers were available under the scheme, the BBC Micro's established reputation as a tool for learning prompted many schools to "buy Beeb". Throughout the Eighties, titles such as Acornsoft's *Podd* and 4Mation's *Granny's Garden* were commonplace in many primary and secondary schools.

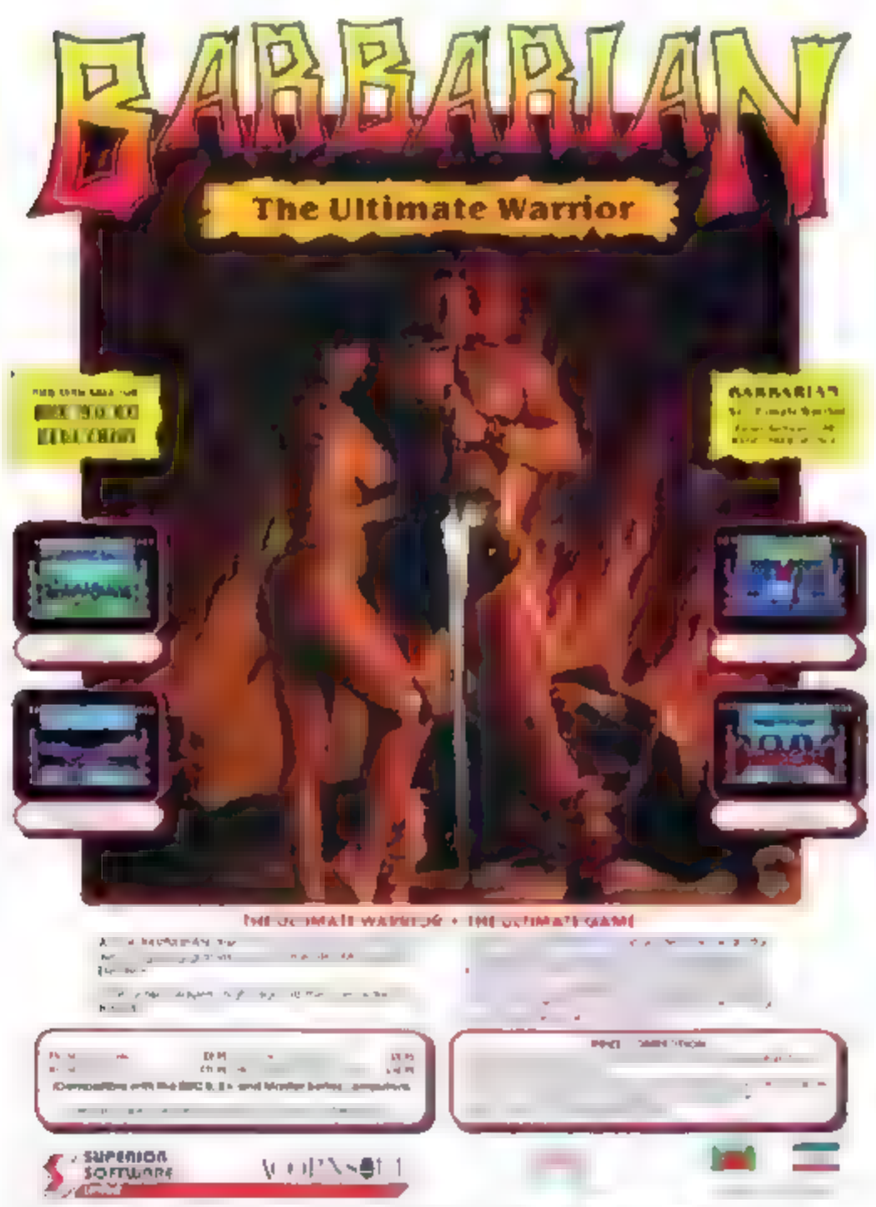
The BBC branding soon showed itself to be as much curse as blessing, however, as the BBC Micro found itself seen as something that belonged in the corner of the classroom, a conception fuelled all the more as Spectrum and Commodore

» *Aviator*, a spitfire sim, built on Crammond's success, with g-forces that could tear the wings off

computers emerged surrounded by a huge games industry. Although never on as large a scale, a substantial games industry did grow alongside the BBC's popularity, with around 1,200 titles released throughout its life. And key to its emergence was Acorn itself, through its own highly prolific Acornsoft software label. "Acornsoft were fantastic and a joy to work with. They were both gamers and huge fans of all the technology behind games," reveals Braben. "In the beginning I thought they set a great standard for everyone to have to live up to," adds Peter Johnson, the man behind hit titles such as *Overdrive* and *Impossible Mission*. "Most of their conversions were pretty accurate – things like *Planetoid* (*Defender*) or *Snapper* (*Pac-Man*) were great in their day."

"I saw BBC Micros at a local computer club and was so gobsmacked by the speed and colourfulness of *Planetoid* that I decided I had to have one," says Jason Sobell, co-author of titles such as *Future Shock* and *Vindaloo*, "so I sold my Spectrum 48K to one of my college lecturers and went and picked up a shiny new 32K BBC Micro." An outstanding conversion of the arcade classic, the late Neil Raine's game was originally issued under the title of *Defender*, before Acornsoft succumbed to pressure from Wilson. 'Some of the Acornsoft games, such as *Planetoid*, were the early pacesetters, in my opinion," adds Richard Hanson, who would soon find legal pressures of his own to contend with. Johnson's version of *Q*Bert* also hit the shelves under the original's title, without permission for the licence being sought. "It seems shockingly naive now," he says, "but in those days no one was particularly active in pursuing copyright in the home computer market. We had to pull it after around three weeks after a scary 'cease and desist' letter arrived." The short-lived conversion was released by Hanson's Superior Software, a company founded in 1982, that would eventually prove to be the most prolific software company on the

» *Free Fall*, was an intriguing space-fighting game, by *Elite* co-author Ian Bell. Despite an excellent game engine, it was hampered by a slightly unwieldy control system, and was far too easy. It was often possible to leave the game running without any intervention, and your character wouldn't die for several minutes.



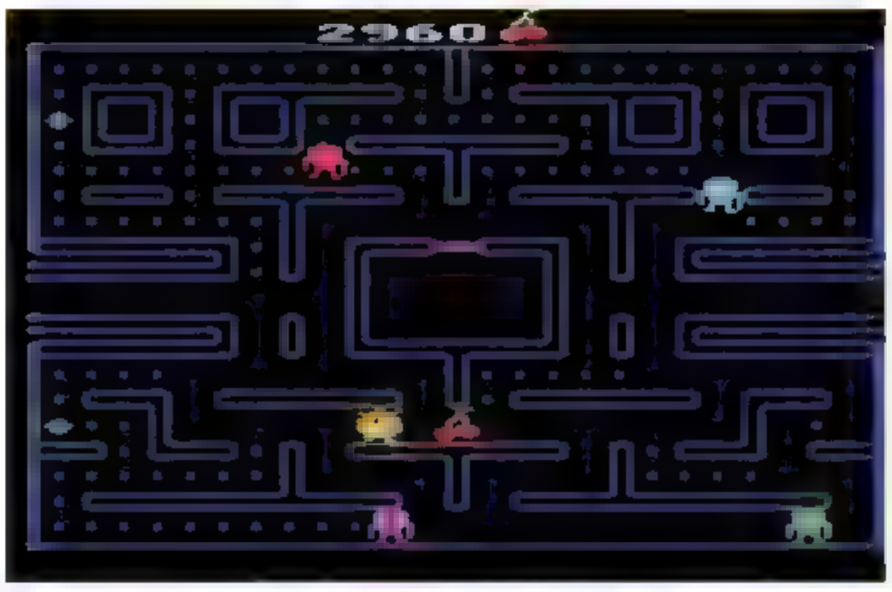
» The infamous *Barbarian* ad – featuring Page 3 stunner Maria Whittaker alongside none other than Wolf from *Gladiators* – was blasted from many quarters, appalled that such filth could find its way onto their newsagent's shelves. The controversy served only to make Peter Scott's excellent conversion a huge hit on both the BBC and Electron

» Geoff Crammond's cracking take on *Invaders* was followed in 1983 by the first clear sign of his future direction. *Aviator* was a good, though complicated flight simulator – many players had to consult *Micro User*'s guide to the game just to work out how to take off – but Crammond's real gem came in the form of 1984's *Revs*, an outstanding Formula Three simulator

BBC MICRO

» Gremlin's *Starclash* was short-lived after obvious comparison's with *Elite*. In fact lega action was threatened, and the game swiftly withdrawn from sale

» Orlando's super-smooth take on *Tempest* – an incomplete demo – was a substantial improvement on the version which hit the stands on the Superior Software labe



» Acornsoft was renowned for excellent arcade conversions, but the original version of this *Pac-Man* clone was so faithful to the original that Acornsoft was forced to withdraw it and tweak the graphics. This led to the addition of a cowboy hat and legs to the main character, and the ghosts switched for limbed monsters

8-bit Acorn scene. Hanson was a programmer himself, and prior to starting his own label had written games for the Atom that were released by Leeds-based publisher Program Power (later Micro Power), another major player in the BBC games market. During the early life of the BBC Micro, Acornsoft, Superior Software and Micro Power were the dominant players on the games scene.

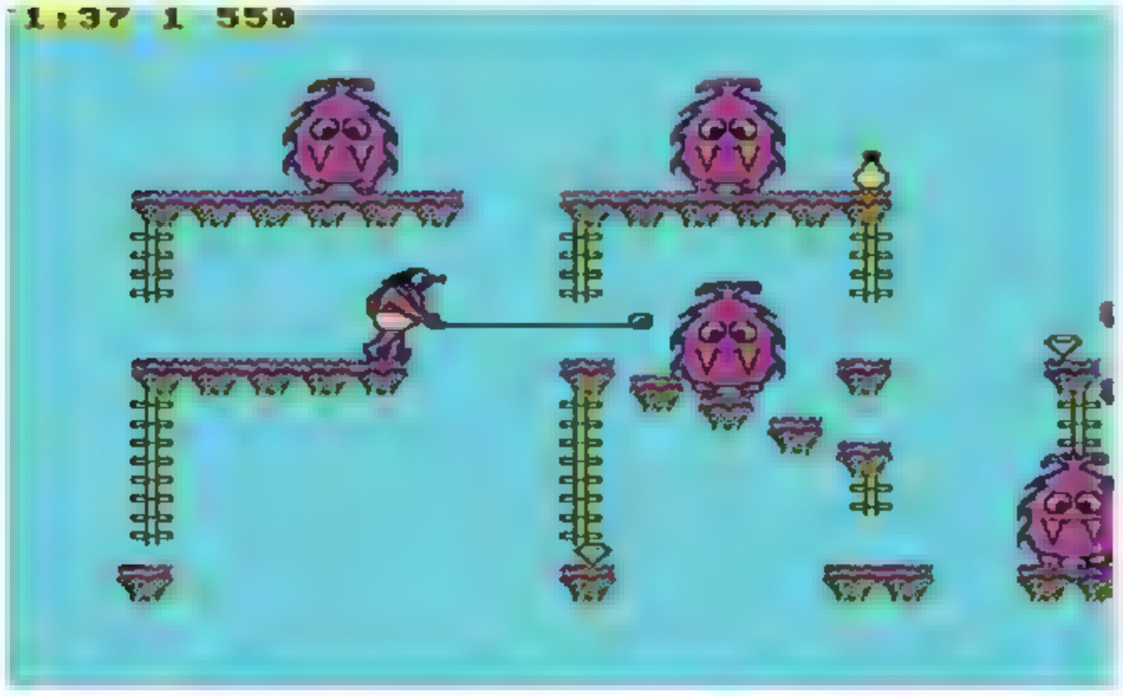
The success of the BBC Micro was reflected in Acorn's profits rising from £3,000 in 1979 to £8.6 million by July 1983. By that year, however, rivalry was intense in the home computer market, as Sinclair and Commodore had cultivated enormous games markets around their flagship machines. Sinclair's Spectrum 48K, in particular, was making enormous waves, and would, by mid-1983, be selling for under £130 – substantially less than the cost of the Model B. Acorn responded to the swiftly moving market by launching a cheaper sister machine to the BBC, in a move that would prove to be a seminal moment in the company's history.

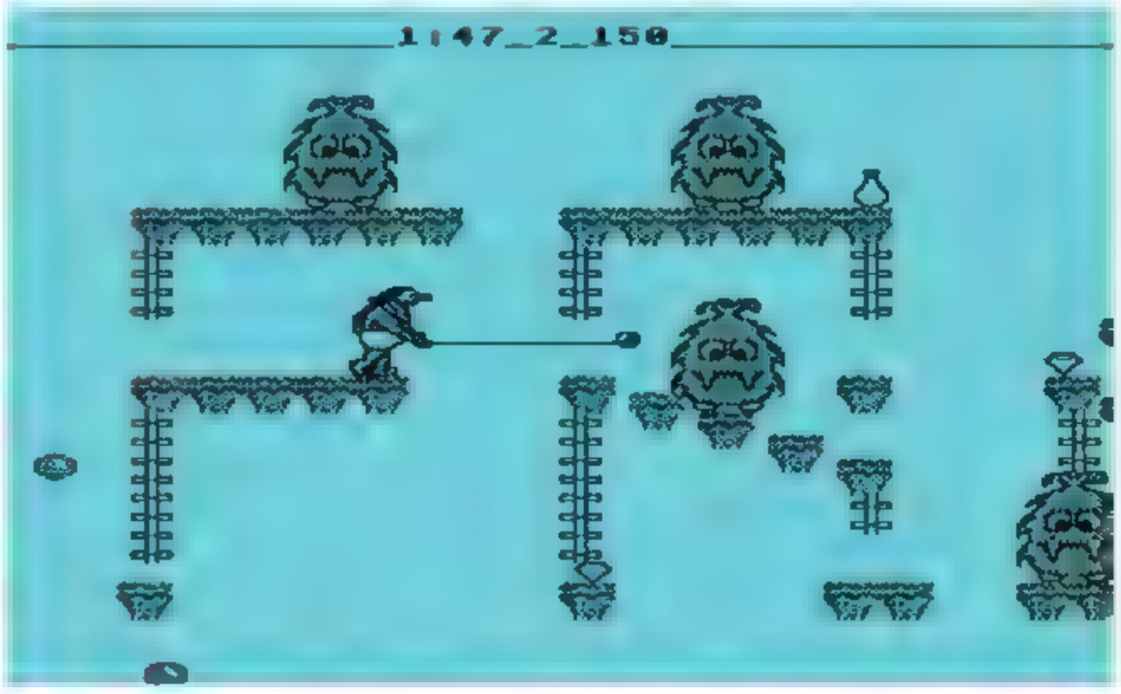
The Acorn Electron launched in August 1983 at a price of £199, a timing and pricing that was a direct attempt to tap into the Christmas sales market. Curry would, once again, be locking horns with former employer, Sir Clive Sinclair. Substantially smaller than previous Acorn home computers, the Electron retained the 32K of the BBC Model B, but was slower and sacrificed much of the connectivity of its more expensive sibling. "I designed the case size out of a cardboard tissue box," says Wilson. "We didn't like what the first industrial designer came up with and needed a rebuttal." In spite of its cut-down nature, significant demand for the new model was courted by a high-profile advertising campaign, and everything appeared set up for Acorn to make inroads into Sinclair's share of the market.

"The Christmas that wasn't" is how Wilson reflects on late 1983. Demand for the new model far outstripped supply – 300,000 orders made, 30,000 machines delivered, according to one source – and the Electron's big chance to enter the market vanished as impatient parents opted for the readily available C64s and Spectrums as presents. Unfortunately for Acorn, by early 1984 the production problems were easing, but the original contracts drawn up with manufacturers were still being adhered to, meaning that the large numbers intended to be in shops for the previous Christmas were being delivered, but precious few customers were willing to buy them. An estimated quarter of a million Electrons were left unsold by the end of 1984, and the boom time of the previous few years was replaced with a time of great uncertainty at Acorn.

"The video hardware on the Electron was very poor compared to the BBC," says Braben. Indeed, the Electron suffered as the higher resolution screen modes slowed the machine considerably in comparison to its older sibling due to the way in which the machine handled its CPU cycles. Sound was also an obstacle, with the new mode featuring only one-track audio compared to the three tracks for music alone enjoyed by the Beeb. "The Electron would slow

» Due to the Electron's speed problems in colourful high-resolution screen modes, authors would often opt for quicker, two-colour modes, as seen here in *Frak!* Other high-profile examples of this trade-off of speed for colour come in the Electron version of *Elite*





» The text adventure scene was vibrant on both the BBC and Electron, with titles such as the Robico's *Enthar Seven*, Epic's *The Lost Crystal*, Shard's *Woodbury End* and Larsoft's Quill-penned adventures including *Nine Dancers*. A grisly end meets the adventurer here in *Snowball*, one of a string of outstanding releases by the Level 9 label.

down occasionally when you made a sound," recalls Peter Scott, a prolific programmer of titles such as *Thunderstruck*, *Omega Orb* and *Ransack*. "Only having a single sound channel meant that the audio sounded choppy," adds Sobell, "and any background music was muted for every beep or gurgle in your gameplay."

"The differences between the hardware meant getting a game that really pushed the limits on both machines without the need for totally rewriting it for each was impossible," continues Scott. "I rarely used the hi-res, memory-hungry graphics modes that slowed the Electron down to a crawl. That meant my games ran at almost the same speed on both machines." Johnson agrees. "Superior wanted me to do *Overdrive* on the Electron for quite a while. It was only when they said, 'Okay, you've got to do it now – we've printed the cassette inlays', that I actually went away and wrote it. It only took about a week and a half – it wasn't very difficult."

Ian Bell is perhaps the bluntest about the machine: "I never really liked it as a computer." Wilson adds: "The Electron wasn't a success. It should have been a year earlier." However, the Electron was supported by several software publishers, and many games were marketed as 'BBC/Electron' titles, with either one version of a game compatible with both machines, or one version on one side of a cassette, and the other on the reverse.

A bad year for Acorn was offset by a vintage year for BBC games and 1984 saw the arrival of two titles on the Acornsoft label, which acted as showcases for programmers whose names resonate not only across the Acorn 8-bit scene, but across gaming in general.

Geoff Crammond's association with the BBC began back in 1981 with *Super Invaders*, a super-smooth *Invaders* clone that is still immensely playable today. The first real clue to his future direction, however, came in 1983 with *Aviator*, a wireframe flight sim with an incredibly sophisticated physics-based engine. In 1984, it was followed by the stunning *Revs*, an outstanding Formula Three driving simulator that paved the way for Crammond's work on *Stunt Car Racer* and the *Grand Prix* series of games. *Revs* remained the outstanding racing title on the BBC throughout the computer's life, with only The Fourth Dimension's *E-Type* – released some six years later – as serious competition.

Bell and Braben's major contribution to the Acorn canon is one which reverberates far and wide today, there are few formats in the Eighties and Nineties that weren't graced with a version of the classic space trading game *Elite*, a game that debuted on the 8-bit Acorn. "A lot of the games at the time were games made for a quick buzz, whereas *Elite* had a depth that meant the player was rewarded for their investment in playing the game," recalls Johnson

» The choice that the Acorn Atom offered was heavily marketed at consumers

OTHER VERSIONS – WHEN ONE MACHINE ISN'T ENOUGH...

Acorn Atom

Acorn's first home computer sold for £120 in kit form, or £170 fully assembled. The entry-level model had 2KB of RAM and 8KB of ROM. Generally considered a successful entry into the market, the machine had built-in Atom BASIC but was criticised by Acorn's own technicians due to the MC6847 video chip it ran, which was NTSC-only.

Acorn Electron

Cut-down version of the BBC Model B, launched at £199 and aimed to impact on the Spectrum-dominated sub-£200 market. 'The Elk' was restricted to just one channel sound, and offered less connectivity than the BBC. Official upgrades, the Plus 1 and Plus 3, were released, which gave the Electron more expansion ports.

BBC B+

An expanded BBC B featuring either 64KB or 128KB RAM, with prices starting at £499. Almost identical to the BBC B in looks, except for a keystrip detailing the amount of RAM on board. The machines featured 32K standard memory, and the remainder was split between sideways (video) and shadow (extended) RAM.

BBC Master, Master Turbo, Master 512 and Master Compact

The final 8-bit Acorn machines, which ran on the streamlined 65C02 processor. The Master Turbo and 512 models shipped with second processors but were otherwise identical to the basic Master. The Master Compact was fundamentally the same machine, but redesigned

Collectables

A short-lived series of Business Computers was launched in 1984, all based around the B+, while a modified Electron linked to a speech synthesizer and a modem known as the British Telecom M2105 also surfaced. After the Olivetti takeover, BBC Masters were rebadged under the Olivetti name as the Prodest PC 128 S for the Italian market.

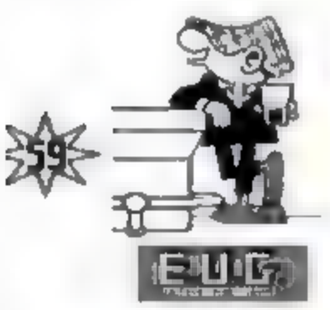
BBC MICRO

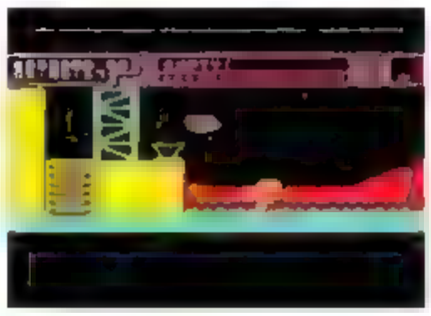
THE BBC HOMEBREW SCENE

The homebrew scene surrounding the BBC and Electron has always been strong, thanks to type-in games in the likes of *Electron User*, the pick of which found their way on to budget label Alternative's Triple Decker series. Since the death throes of the commercial games market for the Acorn machines, however, a small but determined group of fans have kept the flame alive. Recent commercially released titles such as Cronosoft's platformer *Egghead In Space*, and *Weenies*, a storming *Lemmings*-like puzzler, are well worth a look.

The best sources of material, currently, are to be found in the form of BBC PD and EUG (Electron Users Group). The pair has, over time, accumulated a quite astonishing array of utilities, artwork, musical compositions, demos, and a substantial number of full-blown games.

Standout titles include Peter Hatton's *Moonbase Beta*, an excellent platformer with a similar feel to Peter Scott's *Spycat*, and Lars Osterbale's collections of work, which take in impressive demos as well as games including shooter *Pantheon*. There are plenty of offbeat delights to be found, too, such as *Argument Sketch* – a port of a subgame featured in the Amiga title *Monty Python's Flying Circus* – and *You're Alan Partridge*, a quiz show for the Electron that supports Millsgrade Ltd's little-known Voxbox speech synthesizer for the machine.





"It created a real buzz everywhere," adds Scott. "People with other machines were, for the first time, jealous of BBC owners."

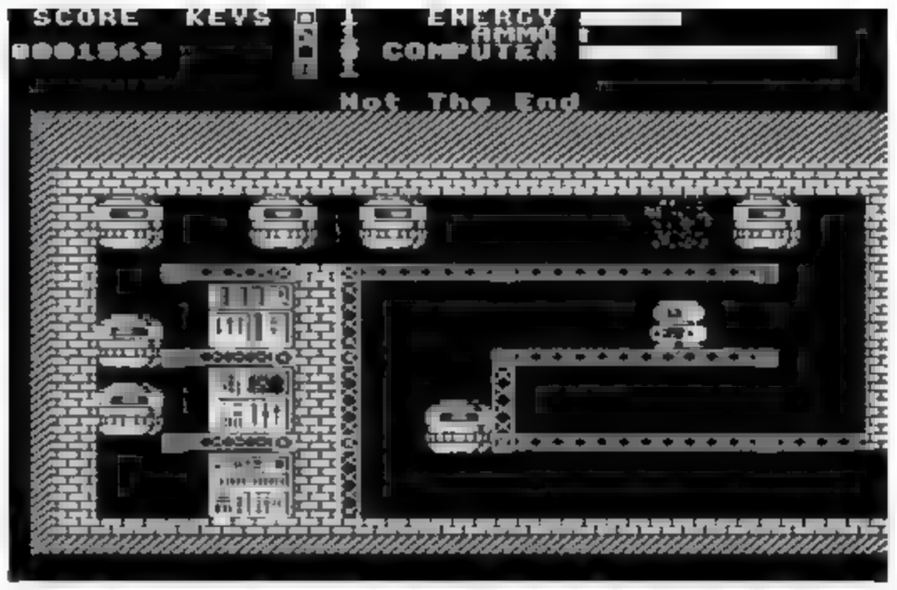
Like the best arcade games, *Elite* has not been short of imitators over the years, but one BBC title, Gremlin's *Star Clash*, written by Julian Bushell, met with gaping jaws upon release, such were the similarities. "It did look a little like plagiarism to me," says Braben. "I even saw a bug in it that I knew to be in *Elite*." With legal action on the cards, the game was swiftly withdrawn from sale.

Also in 1984 came *Frak!*, a ladders and levels game based around a caveman armed with a yo-yo from the pen of Orlando (aka Nick Pelling). While a great game, Pelling's finest moment for the Beeb would come three years later in the form of the awesome *Firetrack*, one of the outstanding 8-bit shoot-'em-ups on any platform. "We'd all await the latest game from Orlando with bated breath," says Scott. "That was the last really amazing technical achievement on the Beeb in my view, with beautiful scrolling and great gameplay." Other Pelling creations included the earlier shooter *Zalaga*, a fantastic clone of *Galaga*, as well as another technical wonder, *3D Pool*, a title arriving late in the BBC's life. Most intriguingly, and a genuine rarity only recently unearthed, is a super-smooth development version of *Tempest* from 1986.

In spite of the problems at Acorn, development continued, and hard on the heels of the Electron came the BBC B+, which arrived in 64K and 128K incarnations. While the extra memory offered a clear improvement on the 32K machines, the new models suffered due to compatibility issues with some BBC B games and a general lack of support. "Nobody really cared about the BBC B+," says Sobell. "There were thousands of BBC Bs out there, nobody was going to release a game that didn't run on that platform. I never really understood why the B+ was released." Never really anything more than a stopgap, the B+ did nothing to halt Acorn's financial woes, which reached crisis point in February 1985.

After fears that Acorn would be wound up altogether, Olivetti acquired a controlling share, and in early 1986, yet another BBC hit the shelves. A clear improvement on its predecessors, the BBC Master Series came with a minimum 128K, and although late onto a scene that was already graced by the 16-bit Atari ST and Amiga computers, the new model consolidated Acorn's position

» Electron owners found themselves disappointed after buying this reissue of Ultimate's classic. As with the original release, the game was incompatible with the machine, and the cassette in fact contained the BBC version on both sides.



» This quality monochrome shooter was a fine budget title on the Bug Byte label, also home to such £1.99 classics as *Savage Pond*, *Hunkidory* and the four-player *Dunjunz*.

in the educational computing market. Later in the year came the Master Compact, as well as the Master Turbo and Master 512, both of which shipped with second processors already installed. Few software houses supported the machines, although Superior Software did offer enhanced Master-compatible versions of some of its releases, including the highly acclaimed Master-only version of Elite. These machines would be the last major 8-bit computers Acorn produced.

Following the launch of the Master series of machines, a long-running Acorn development project entitled ARM was soon to reach completion, resulting in the 32-bit Archimedes range. Acorn would continue to produce computers until the late Nineties, and the Acorn brand was also revived in 2006, offering a range of notebook PCs.

Throughout the turmoil Acorn was facing, the games scene on the BBC and Electron was thriving. 1985 saw the birth of Superior Software's long-running *Repton* series of games, which would eventually yield its own powerful programming language, Repton, released as part of the *Repton Infinity* package. "The *Repton* series of games has been Superior's biggest success story, selling over 125,000 copies in total," says Hanson. Other key Superior releases included Johnson's *Deathstar*, an excellent port of *Sinistar*, and *Barbarian*, one of many conversions Scott coded for the label, as well as the likes of *Thrust*, *Stryker's Run* and its sequel *Codename*

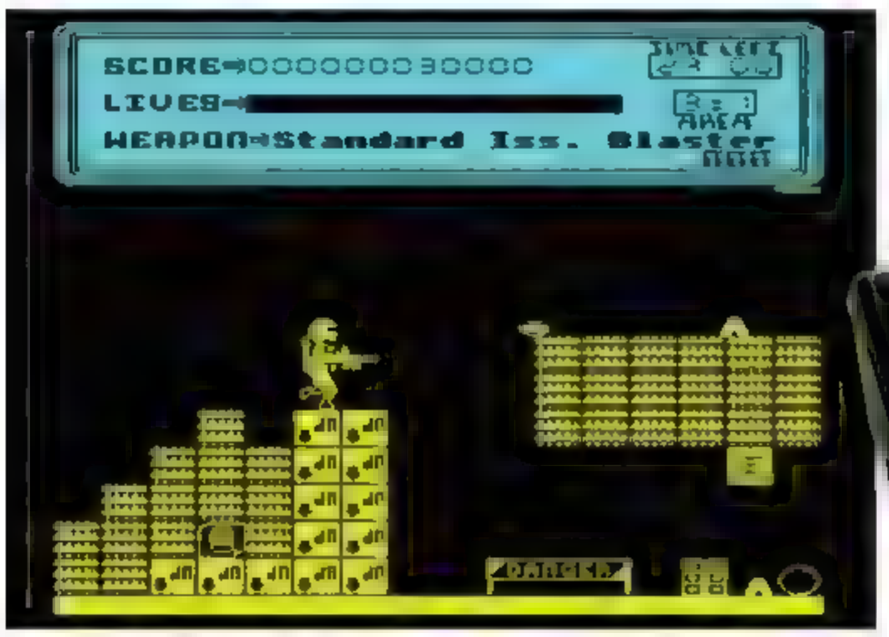
» Tynesoft's slick-looking *Ian Botham's Test Match* cricket game met with frustration from Electron users, after a coding mistake meant it was impossible to hit the ball. Programmed on a BBC, it made use of a memory location that didn't exist on the cut-down machine, and without adequate playtesting on the Electron, around 4,000 copies ended up being returned. *Future Shock* featured guest appearances from characters that had appeared in previous Tynesoft titles, including the duck from *Ian Botham*, as well as Raj, star of *Vindaloo*.

» An unreleased conversion of *Bubble Bobble*, by Peter Gillett. Originally slated to be a 1989 release on the Firebird label, the slowing software market on the BBC made licences from other platforms less attractive to software houses.

Droid, and *Ravenskull*. In 1986, Superior bought the rights to Acornsoft's back catalogue, and lavish re-releases of classic titles such as *Elite* soon followed. One of the most acclaimed BBC and Electron titles, Peter Irvin and Jeremy Smith's enormous space arcade adventure, *Exile*, was another Superior release. The game was another great success for the label and is often held up alongside *Elite* as the pinnacle of 8-bit Acorn gaming.

With Superior's rise to prominence came its long-term rival Micro Power's fall from grace. The label had a string of excellent titles to its name, with fine ports of *Qix* (*Frenzy*), *Mr Do!* (*Mr Ee!*) and *Donkey Kong* (*Killer Gorilla*). Micro Power's defining moment came with Michael St Aubyn's puzzle-based platformer *Imogen*. Unfortunately, ambition got the better of the publisher in the form of Gary Partis's *Doctor Who And The Mines Of Terror*. An enormous arcade adventure, it utilised a special ROM chip, the production of which contributed to the company's financial problems, which eventually caused it to fold.

Following Micro Power's demise, Newcastle-based label Tynesoft came to prominence. Multi-event games such as *Commonwealth Games*, *Indoor Sports* and *Circus Games* all sold well, while original titles such as Jason Sobell and Kevin Blake's platformer *Future Shock* displayed a programming flair as good as anything on the scene at the time. The Tynesoft story ended abruptly when a sister company ran into financial trouble and took the software house down with it. The final blow, however, was an arson attack that destroyed the company's offices. "My immediate thought was 'how convenient'," recalls Sobell. "I believe they found that someone had poured some flammable substance into the drains then set it alight, and that all records, contracts and financial details were destroyed."



» *Cute To Kill* – one of the best shooters to be released on the Beeb – was a little-heralded title on the Mandarin label.

The final words on the mainstream BBC and Electron software scene rest back with Superior Software, though, whose unwavering support of the market continued well into the Nineties, long after most had either folded or moved on to more powerful platforms. Scott's miraculous conversion of *Sim City* is a highlight, topping off a period where he was rightly dubbed 'the conversion king', in reference to quality conversions of offbeat games such as *Hostages* and *Ballistix*. Superior's Play It Again Sam series of compilations had begun with repackages of its own titles, but would soon take in games from a whole host of publishers including Aardvark (Orlando's *Zalaga*), Tynesoft (*Winter Olympiad 88*) and Electric Dreams (*Firetrack*). "We asked other software companies whether they would like some of their games to be included on the compilations," recalls Hanson, "and almost all of them were keen on the idea." In addition, previously unreleased titles such as *Arkanoid* clone *Hyperball* and platform puzzler *Qwak* started to appear. "They were games that we felt deserved to be released," adds Hanson, "but possibly weren't strong enough to warrant individual release." Superior Software later became Superior Interactive, and today produces PC versions of such BBC classics as *Repton*, *Galaforce* and *Ravenskull*, with more on the way including *Stryker's Run* and *Quest*. The BBC may well be dead, but its spirit definitely lives on.

» *Buffalo Bill's Rodeo Games*, a great example of the quality multi-event style games that Tynesoft was renowned for.

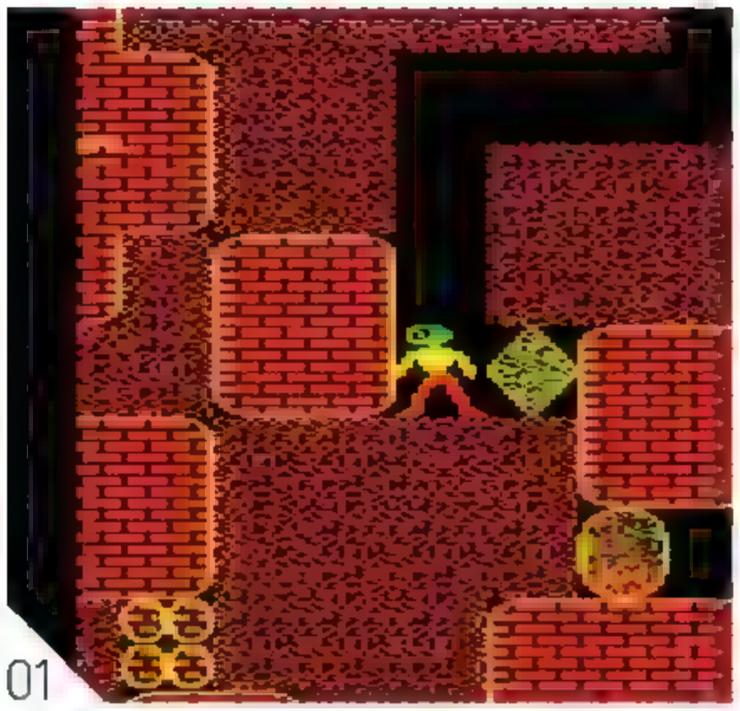
» An early ad campaign from Micro Power.

» As well as a raft of excellent conversions, the BBC and Electron were also home to big-selling disappointments such as this two-colour take on the Atari classic.

BBC COMPUTER

PERFECT TEN GAMES

It may have sat proudly in schools around the country, but Acorn's BBC wasn't just an edutainment machine. There were plenty of amazing games available for it, as the following two pages prove



01

REPTON

- **RELEASED:** 1985
- **PUBLISHED BY:** SUPERIOR SOFTWARE
- **BY THE SAME PUBLISHER:** TRYBRIDGE

01 *Repton* was a brilliant take on *Boulder Dash*, although it's far too methodical to be considered a true clone, that still remains as fresh as a day-old daisy. All the more impressive when you consider that it was put together by a 15-year-old coder. It's amazing to think that the classic *Repton* is now a staggering 22 years old. It seems like only yesterday that we were taking the mickey out of Chris Talbot because his parents had bought him a computer that the rest of us only used at school, while we all played on our Spectrums, CPCs and C64s. Still, Chris had the last laugh, as *Repton* was a great little puzzle game ideally suited to the BBC. It also proved rather popular, selling 125,000 copies between 1985 and 1990.

GRANNY'S GARDEN

- **RELEASED:** 1983
- **PUBLISHED BY:** 4MATION
- **BY THE SAME PUBLISHER:** FLOWERS OF CRYSTAL

02 It may have been seen as a simple educational title, designed to help children become accustomed to using computers. However, in retrospect, *Granny's Garden* was so much more than that. "Ha ha! Now I've got you! I will send you home at once." If you've never heard the previous chilling phrase then you've obviously never experienced the terrors of *Granny's Garden*. Yes, the abrupt endings to your journey are as frustrating now as they were back in 1983. And those annoying dragons are still the bane of your life, but no other education title on the Beeb has been able to pair learning and fun so successfully. An utterly charming adventure gaming experience.

02

IMOGEN

- **RELEASED:** 1986
- **DEVELOPED BY:** MICRO POWER
- **BY THE SAME PUBLISHER:** MICROPOWER

03 *Imogen* is easily one of the BBC's most ambitious games, along with *Elite*, *Citadel* and *Exile*. It proved that 8-bit titles could have massive amounts of depth. Although it starts off looking like just another simple platformer, you soon discover that *Imogen* is littered with ingenious game design and extremely clever puzzles. You are rewarded with immense satisfaction once you've finally worked them out too. A simple icon system was also in place to handle specific tasks such as talking, while your wizard's ability to change into two distinct forms – a cat and a monkey – enhanced the clever puzzles no end and continually opened up the immense game world.

CYLON ATTACK

- **RELEASED:** 1983
- **PUBLISHED BY:** A&F SOFTWARE
- **BY THE SAME PUBLISHER:** CHRISTMAS

04 Few space shooters on the BBC – and there are plenty – match the majesty of this offering from A&F Software. *Cylon Attack* required you to fly through space, shooting down a set number of aliens, which looked suspiciously like some of the spaceships from *Battlestar Galactica*. Initially, docking at the end of each stage to refuel was sufficient. However, later levels would become so intense that extra trips to the fuelling station were required in order to withstand the vicious onslaught. Unfortunately, it lacks the huge level of depth that's found in *Elite*, but if you're all about the blasting, then *Cylon Attack* offers a far more suitable alternative.

MR EE

- **RELEASED:** 1984
- **PUBLISHED BY:** MICROPOWER
- **BY THE SAME PUBLISHER:** ADVENTURE

05 There have been countless conversions of the classic *Mr Do!* on a variety of systems, ranging from the SNES to the Neo Geo. But hardly any of them have managed to capture the magic of the original arcade game. Amazingly, though, Adrian Stephens did it successfully when he created *Mr Ee*. His clone is a scarily accurate version of Universal's original. Armed with no more than a power ball, Mr Do... sorry, Mr Ee... must scuttle around the mazes either collecting a set number of cherries or killing all the monsters to continue. It's not arcade perfect, but it's arguably the greatest conversion of the game that's available.

03

04

05

06

EXILE

» **RELEASED:** 1988
» **PUBLISHED BY:** SUPER[illegible]WARE
» **BY THE SAME PUBLISHER:** [illegible]OF NAMES DREAD

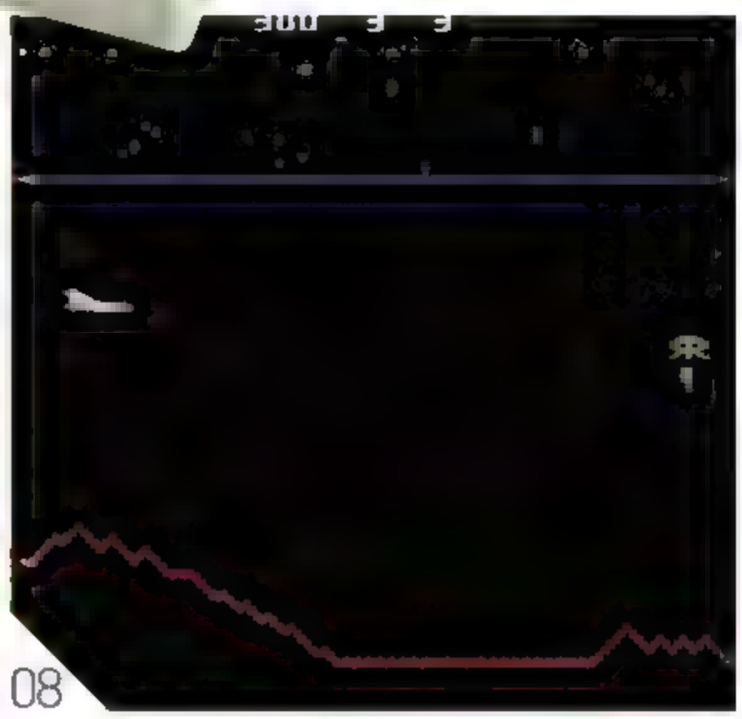
06 When we consider the amount of scorn that the BBC receives on the Retro Gamer forum, it makes us wonder if the haters have ever actually played on one outside of school. Even the briefest play of *Exile* is enough to know that it's something very special. And as your spaceman infiltrates the planet Phoebus, it continues to impress mainly due to its superb physics massive game world and clever game mechanics. With its beautiful looking visuals masterful use of sound and those aforementioned physics. *Exile* is quite possibly one of the most complex adventures that the BBC ever received. A true classic

07

CITADEL

» **RELEASED:** [illegible]
» **PUBLISHED BY:** [illegible]FTWARE
» **BY THE SAME PUBLISHER:** PALACE [illegible]MAGIC

07 Similar to *Imogen*, *Citadel* proves that first looks can definitely be deceiving. Again, it is a title that appears to be nothing more than a simple platformer. While there are plenty of platforms and objects to jump on and over, *Citadel* is actually a sprawling [illegible]t is over 100 screens in size – graphical adventure. Featuring plenty of devious puzzles that require a fair amount of head scratching in order to solve them, it certainly keep you intrigued. With its bold, bright visuals pre-game digitised speech and the opportunity to play as either a girl or boy, *Citadel* stands proudly apart from its BBC peers and remains one of the machine's greatest moments.



08

PLANETOID

» **RELEASED:** 19[illegible]
» **PUBLISHED BY:** A[illegible]T
» **BY THE SAME PUBLISHER:** SHAPE[illegible]R

08 Another great clone. If you're unable to tell by looking at the accompanying screenshot – why are you even reading this? – *Planetoid* was Acornsoft's answer to Eugene Jarvis's *Defender*, and pretty good it was too. Faster than an amphetamine-fuelled cheetah, *Planetoid* was an intense conversion that looked the business and boasted the gameplay to match. It was Acornsoft's second arcade conversion and instantly proved a hit thanks to those fast moving visuals and its challenging gameplay. It was originally called *Defender* but the name was dropped due to legal reasons. Thankfully the same thing didn't happen to the actual game.

09

LORDS OF TIME

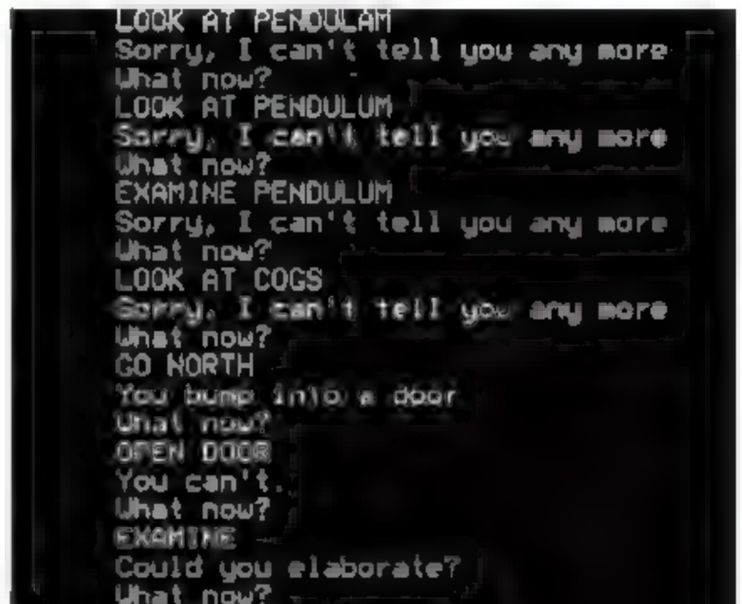
» **RELEASED:** 198[illegible]
» **PUBLISHED BY:** LEVEL 9
» **BY THE SAME PUBLISHER:** DUNGEON ADVENTURE

09 There are a large number of brilliant text adventures on the BBC, but this is arguably one of the best. It features a band of evil time lords – no relation to *Doctor Who* – who are doing their best to alter and change history, so Father Time has asked you to stop them. Set across a variety of different time periods *Lords Of Time* is a compelling adventure game that will cause your brain to go into overload as you try to follow the constantly twisting plot and solve its intricately designed puzzles. With its well-written story, clever parser and crafty puzzles, *Lords Of Time* is a wonderful example, proving that you don't need elaborate visuals to tell an entertaining story. If you do plan on picking it up, then, make sure that you track down Level 9's *Time And Magik* compilation, as it also features *Red Moon* and *The Price Of Magik*.

ELITE

» **RELEASED:** 1984
» **PUBLISHED BY:** ACORNSOFT
» **BY THE SAME PUBLISHER:** [illegible]ARGATH

10 Oh, come on! Did you really think we'd do a BBC top ten and not include the mighty *Elite*? We'd have been hung up and lynched by BBC owners everywhere. Created by David Braben and Ian Bell – at the time, two undergraduates from Jesus College in Cambridge – *Elite* is still seen by many as the definitive space trading game, a title it arguably deserves. Braben and Bell's game is absolutely huge in scope, and its open-ended gameplay and advanced-looking visuals soon meant that it was ported to a staggering variety of home systems and consoles. Even now, homebrew updates continue to get made, and Braben is insistent that an *Elite IV* is definitely on the way. Until that actually happens, though, you'll just have to make do with one of the greatest games to ever appear on Acorn's humble machine.



10

Year Released: 1982

Original Price: £125 (£175 48k)

Buy it now for: £10+

Associated Magazines: *Crash, Your Sinclair, Sinclair User, Sinclair Programs, Sinclair Answers, ZX Computing*

Why the Spectrum was great... Owning a Spectrum was like being part of a secret club. Like-minded gamers who knew what it meant to type out hundred-line pokes, wait ten minutes for *The Hobbit* to load, and had mastered the art of tape-to-tape copying

sinclair ZX Spectrum

THE HUMBLE SINCLAIR SPECTRUM WAS SMALL AND UNASSUMING, YET IT MANAGED TO CONQUER THE UK COMPUTER MARKET DURING THE EIGHTIES AND WAS COMMERCIALLY VIABLE FOR MORE THAN A DECADE. DURING THIS TIME THE MACHINE WON THE HEARTS OF MILLIONS AND A THRIVING FAN SCENE NOW EXISTS. MARTYN CARROLL LOOKS BACK AT THE LITTLE COMPUTER THAT OVERCAME THE ODDS AND MADE IT BIG

Having made a name for himself in the electronics field, releasing everything from pocket calculators to tiny televisions, Sir Clive Sinclair turned his entrepreneurial gaze toward computers, and in 1978 he launched the MK14. It was sold in kit form and proved to be little more than a programmable calculator, but sales of over 50,000 convinced Sir Clive that there was a hunger for computers aimed at hobbyists.

In early 1980, Sinclair released the ZX80, a diminutive home computer with a touch-sensitive membrane keyboard and just 1K of memory. It, too, was sold in kit form for £79, but crucially a pre-built version was available for £99, opening up the world of computers to more general home users who weren't prepared to whip out a soldering iron and start bolting bits together. However, it was the ZX80's successor, the enhanced and improved ZX81, that really kick-started the home-computing craze in the UK. Released in March 1981 and available for either £49 (kit form) or £69 (pre-built), the ZX81 clocked up sales of more than 400,000 in a little over 12 months. Sinclair had devised the ultimate entry-level computer and the British public were buying into it.

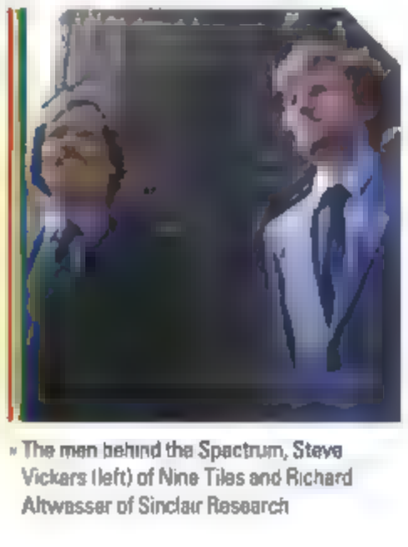
But Sir Clive wasn't about to stand idly by, counting the cheques and postal orders that were pouring into his hectic mail order department. The industry he'd had a hand in creating was moving fast, very fast, and competitors were queuing up for a piece of the pie. To compound matters, the cost of components and memory was tumbling all the time, allowing more manufacturers to tap into the low-cost computer market that belonged almost exclusively to Sinclair. Plus, there was the small matter of Acorn beating Sinclair to a lucrative BBC contract that would ultimately see Acorn computers installed in classrooms up and down the country. It was time for Sir Clive to dig in and fight his corner.

To this end, Sinclair began to mastermind the ZX82 and ZX83 models. The former would supersede the ZX81, adding sound

Tech specs

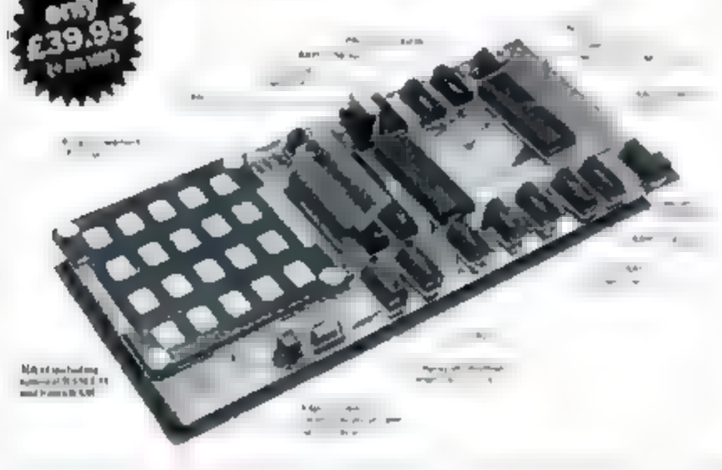
A trusty Z80A chip running at 3.54MHz powered the Spectrum. The machine was available with either 16K or 48K of RAM, and Sinclair BASIC was provided on a 16K ROM chip. The video display could output a total of 24 lines of text with 32 character positions and 192x256 pixels for high-resolution graphics. The Spectrum had very few external connectors. There was TV out, ear and mic ports to connect a tape recorder, as well as a 28-pin expansion slot for connecting a wide range of peripherals, including joystick interfaces, printers and Sinclair's very own Microdrive storage system.

Sinclair's Richard Altwasser, who had previously helped develop the ZX81, designed the Spectrum's hardware. The ROM code was written almost entirely by Steve Vickers of Nine Tiles Information Handling Ltd; a small portion was adapted from the original ZX80 ROM code written by John Grant – while Sinclair designer Rick Dickinson created the casing and infamous 'dead flesh' keyboard.

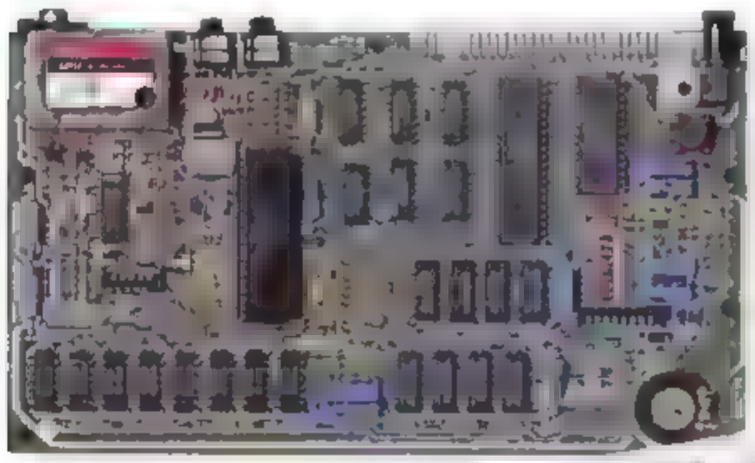


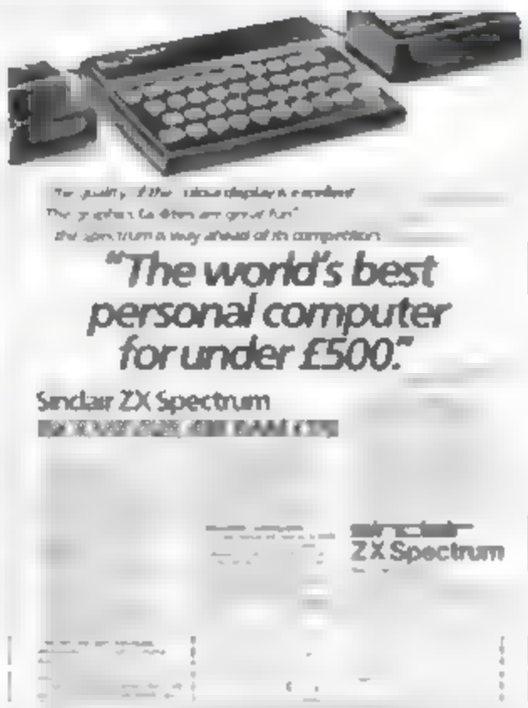
» The men behind the Spectrum, Steve Vickers (left) of Nine Tiles and Richard Altwasser of Sinclair Research

sinclair ZX Spectrum



The MK14 was Sir Clive's first home computer and today is highly sought after by Sinclair collectors





The first Spectrum print advert sang the Spectrum's praises – in fact, it even included a glowing quote from Sir Clive himself!

The Spectrum was a fairly simple machine, with no dedicated graphics hardware and limited expansion options. (photo: Bill Bertram)

Released in April 1982, the Spectrum went on to become the UK's bestselling home computer

capabilities, colour graphics and a moving keyboard to the mix, while the latter was hoped to seize control of the small business market.

The eventual fortunes of the two machines couldn't be more different. The ZX82 was renamed the ZX Spectrum and went on to become Britain's bestselling home computer. The ZX83, meanwhile, was launched as the Sinclair QL (Quantum Leap) in 1984 and failed to make an impression as a business machine. The QL is now regarded as an embarrassing footnote in the Sinclair story, second only to the disastrous C5 motorised tricycle – although, to be honest, the C5 is probably more of an epitaph than a footnote.

RAINBOW BRIGHT

In April 1982, long before the QL and C5 tarnished Sir Clive's name, the Spectrum was launched in a blaze of publicity at the Earls Court Computer Show. Shortly after its unveiling, an advert for the new computer began to appear in specialist computer magazines. It was typically text-heavy and very Sinclair, hammering home each of the machine's 'astonishing' new features. Topping the list of key features was the Spectrum's high-resolution colour graphic capabilities. Whereas the ZX80/81 were monochrome machines, the Spectrum lived up to its name by outputting seven colours plus black. Sound support was also included, with the new BEEP command allowing you to control pitch and duration. The advert went on to reveal details of a full-size moving keyboard that would replace the plastic membrane used on the ZX80/81. To seal the deal, the Spectrum came with a very generous amount of RAM: 16K as standard, with an expanded 48K version also available.

But what about the price? Would Sir Clive be able to continue his noble aim of delivering affordable computers to the masses? The answer was a resounding yes. The 16K model was available for just £125, and for £50 more you could take home the 48K version. Compare that to the Commodore 64, which launched in the UK at £299. Or even better, the BBC Model B, which would lighten your pockets to the tune of £399. Sinclair had soundly undercut the competition and looked to have sewn up the market once again.

The advert posed a problem, however, as the Spectrum simply sounded too good to be true. All those features for such a competitive price? There had to be a catch. But before anyone could see the machine and make up their own minds, they had to suffer Sinclair's famously unreliable mail order department. Customers were advised to allow up to 28 days for delivery and yet those who'd placed their orders early typically had to wait between 12 and 16 weeks for their shiny new machines to arrive. During the latter half of 1982 Sinclair was reportedly manufacturing 20,000 Spectrums a month and was still unable to meet the huge demand. It didn't help that a quantity of machines were earmarked for overseas markets following a steady European roll out. Things did ease somewhat by early 1983, mainly because the Spectrum was made available though WHSmith and other high street chains.

Great games that made a splash on the Speccy From left to right: *Manic Miner, Ant Attack, Lords Of Midnight* and *Head Over Heels*

RUBBER SOUL

The advert flagged the Spectrum as a "powerful professional's computer", but in several respects the new computer was very similar to its more primitive forebears. It's believed that this was intentional on Sir Clive's part as a means of speeding up production and keeping costs down.

At first glance it was obvious that Sinclair had performed another miracle of miniaturisation. The Spectrum was just 23cm wide, 14cm long and 3cm deep. The most noticeable new addition was the small rubber keys that poked through the sleek black casing. A single sheet of spongy rubber was used and by pressing down on a key, the contact underneath was closed and then the key sprung back to its original position. It was preferable to the ZX81's touch-sensitive keyboard – and probably just as cost effective – but to call it a 'full-size, moving-key keyboard' was a little optimistic.

The actual keyboard layout was almost identical to the one that debuted on the ZX80. There were 40 keys in total, compared to an average of 60-70 keys found on computers with proper typewriter-style keyboards. The updated Sinclair BASIC retained its one-touch keyword entry system, where a typical key could be used to enter five different commands depending on which shift keys it was pressed in conjunction with. This input method baffled beginners and proved far too restrictive for more seasoned users. To complicate matters, a number of new BASIC commands were introduced, taking the total number of keyboard functions to a finger-bending 193. In some cases it would be quicker to manually type the command than press the required series of keys. Again, the advert was slightly wide of the mark with its "one-touch" keyword entry claims.

What about the new colour capabilities? Well, Sinclair actually undersold the Spectrum in this respect. There were eight basic colours, yet the BRIGHT command could be applied to every colour except black, making 15 in total. Coupled with the surprisingly high screen resolution (256x192 pixels), the Spectrum's display capabilities could rival machines retailing at twice the price. There was a drawback, however: to save memory, each 8x8 pixel square could only display a foreground and background colour. As a result, in games where a character sprite of one colour passed over a background of a different colour, the colour of the sprite would bleed into the background. This so-called colour clash effect was unique to the Spectrum, much to the amusement of Commodore 64 and Amstrad CPC owners. We can now look back and say that colour clash gave Speccy games a certain charm, but back in the day such wistful reasoning would never have settled those playground spats.

Rather than blast sound through your TV set, the Spectrum featured a small internal speaker. It was affectionately known as the 'beeper' because it... well, beeped, and that was about it. You could control the length and tone of the beep but not the volume, which was a shame because the speaker was barely audible in the first batch of models off the production line – later versions corrected this problem to some extent. Worse still, the speaker would temporarily freeze the processor while it played a sound. Considering what they had to work with, it's amazing that programmers managed to add sound effects and music to games at all. Even more remarkable is that musicians like Martin Galway and Tim Follin developed routines that simulated multiple sound channels. It was also possible to play sampled speech through the speaker, albeit in very crude fashion.

PLAY THE GAME

Despite these technical shortcomings, the Spectrum quickly generated a huge range of independent software. Games were incredibly popular and unofficial versions of arcade classics such as *Space Invaders, Pac-Man* and *Breakout* quickly flooded the market. Software houses that had sprung up to support the ZX81 were drawn to the new machine, attracted by its colour graphics, relatively huge memory – the 48K version, at least – and rapidly growing user base.

Bug-Byte, Mikro-Gen, Quicksilva, Imagine, Ocean and dozens of other developers made a name – and a small fortune – for themselves during these early years, but one company in particular stood out from the crowd. Ashby Computer and Graphics Ltd, then operating under the trade name Ultimate Play the Game – now known as Rare – set the whole scene alight with a series of stunning Spectrum games. Its first four releases – *Jetpac, Pssst, Cookie* and *Tranz Am* – became bestselling classics that other developers could only dream of, and yet they all ran on a standard 16K Spectrum. Ultimate's 48K games were bigger and better, with titles like *Atic Atac, Sabre Wulf* and *Knight Lore* whipping the computer press into a dribbling frenzy. Other groundbreaking games that debuted on the Spectrum before being ported to different machines included Matthew Smith's *Manic Miner*, Sandy White's *Ant Attack*, Mike Singleton's *Lords Of Midnight* and Jon Ritman's *Head Over Heels*, among many others. The Spectrum really was home to an embarrassing number of great games.

It was this catalogue of games, as wide as it was deep, that pushed sales of the Spectrum through the roof. In the run-up to Christmas 1983, over 50,000 machines were sold every month in the UK. As the cost of components fell, Sinclair fuelled demand further by slashing the price of the Spectrum. The 16K model was reduced to just £99, nestling just under the psychological price barrier of £100, and the 48K version retailed at a very attractive £129.

This was the Spectrum's golden period, but sadly it didn't last much beyond 1984. In October of that year Sinclair released the Spectrum+, which, rather than the souped-up Speccy that buyers and retailers had hoped for, merely added a moving QL-style keyboard. Similarly, the long-awaited Spectrum 128, which received a low-key UK launch in February 1986, was essentially a Spectrum+ with 128K memory, a new three-channel sound chip and an updated version of Sinclair BASIC. These updates were cautious, lazy even, perhaps because by this time, Sinclair's focus and finances had shifted almost exclusively to the doomed C5 project. In summer 1986 Amstrad acquired Sinclair's computing arm and went on to create Spectrum-based clones of its popular CPC range. Amstrad's +2 and +3 models were marketed as games machines and certainly attracted new buyers but those who'd fallen in love with the ZX line would sadly never see a true successor to the Spectrum. Perhaps if Sinclair had continued to attack the competition as aggressively as it had done during the early Eighties, then a 16-bit computer capable of undercutting the Commodore Amiga and Atari ST might have been a distinct possibility. Nevertheless, a place in computing history is unreservedly set aside for the not-so-humble Sinclair Spectrum.

Sinclair Research boss Sir Clive Sinclair pictured here at the QL launch back in January 1984.

The wonderful World of Spectrum

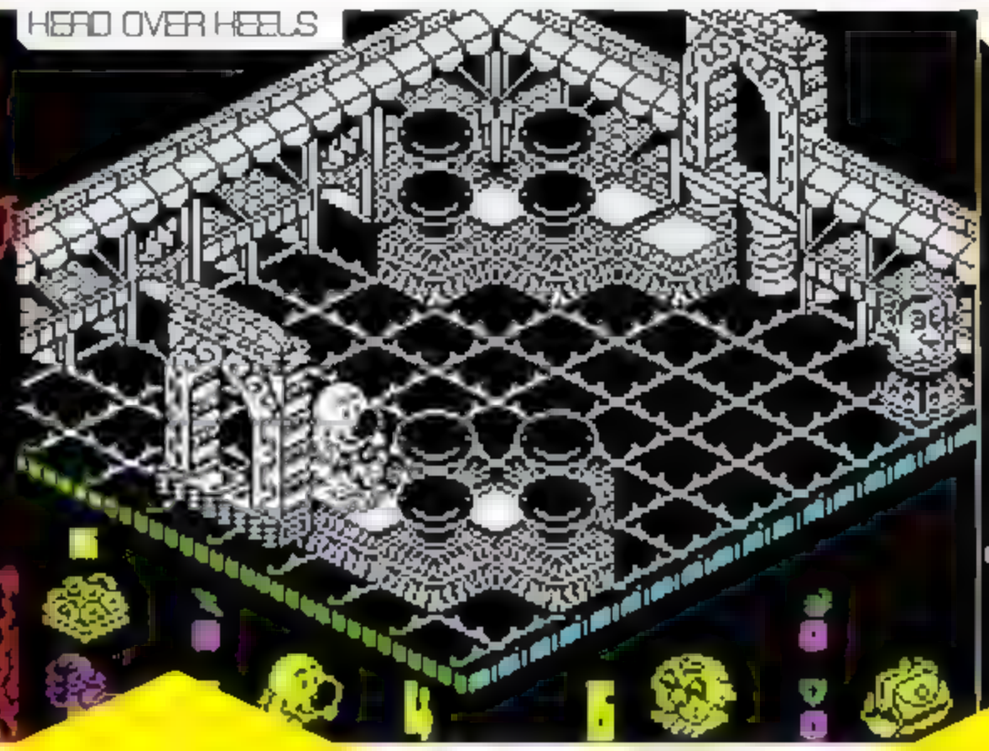
Speccy fans are fortunate in that one of the web's best retro sites is dedicated to the machine. World of Spectrum (**www.worldofspectrum.org**) contains information on more than 12,500 games, with screenshots, links to reviews and, in the vast majority of cases, downloadable ROMs that can be played on modern platforms via emulation. Don't let the presence of ROMs deter you, though: webmaster Martijn van der Heide actively seeks permission from publishers to offer the games freely on the site and will remove games if it's requested by an IP owner.

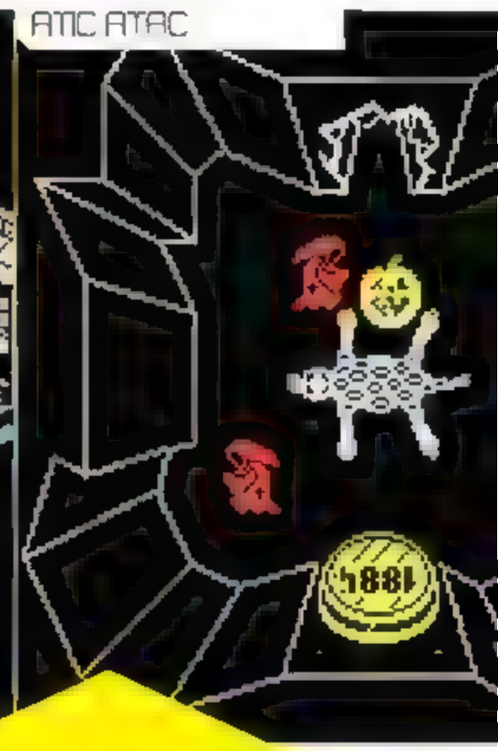
World of Spectrum celebrated its 10th birthday at the end of 2005 and at the time we asked Martijn if he was planning to celebrate the anniversary. "Well, I've added a smallish new section to the site, covering the Timex versions of the Spectrum," he replied in typically modest fashion. But what about the long-term future of WoS? "It will take several more years to update the databases, so I hope to provide a more complete history over time. Other than that, we are aiming to provide many more screenshots. And when more people have broadband internet we'll shift to a more glossy, interactive environment." It's safe to say we're already enjoying the next 10 years.

World of Spectrum is not just the best Speccy site on the web, but arguably the best retro resource full stop.

PERFECT TEN GAMES

STARQUAKE


HEAD OVER HEELS



ATIC ATAC

STARQUAKE

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

Steve's Crow unbelievably addictive flick-screen platformer mixes pure playability with crisp sci-fi graphics and frantic puzzle solving. It's one of those games where every aspect has been polished to gleaming perfection whether it's the mini Mastercards that open any doors (geddit?) the ability to summon temporary platforms beneath you at will or the handy passworded teleporters that make light work of navigating the immense caverns. However, it's the sheer speed of the thing that makes *Starquake* such an exhilarating experience on the Spectrum. Crow's devious mazes require serious cunning to traverse, and it's all kept at a feverish pace thanks to a constant supply of energy-sapping enemies. A must for every Spectrum aficionado. *Starquake's* pure 48K bliss.

ANT ATTACK

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

Few games in the early Eighties were as atmospheric and downright terrifying as *Ant Attack*, the first real home videogame to be viewed from an isometric perspective. The ghostly monotone graphics only served to intensify the desolation of the abandoned, waterlogged city of Antescher and made the sudden appearance of the titular ants even more shocking. Typical games are spent tearing around the tomb-like structures desperately following the trail of red dots from your scanner to locate each lost soul. Sudden ant attacks are acute and persistent and require a dash to high ground or a well-aimed grenade to avoid. One of the few games to actually allow you to choose your sex, *Ant Attack* is still a prime example of a simple concept well implemented and burnt into the minds of a generation of gamers.

HEAD OVER HEELS

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

Pre-1987, Ritman and Drummond had toyed with the likes of the similarly isometric *Batman*. But it was with *Head Over Heels* that the duo truly achieved greatness. It's difficult to describe the impact this game had when it was released, surpassing every other 3D platformer in an instant with its relentless assault of clever ideas, kitsch graphics and sure-footed game design. Ritman's a master of Rubik's Cube-style puzzles and nearly every room requires lateral thinking and more than a dash of fingertip dexterity. Dividing the *Head Over Heels* characters' abilities so that they can only progress so far as separate entities and must literally join forces to complete the game is a masterstroke and typical of the ingenuity that seeps from the game's every pore.

THE GREAT ESCAPE

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

In the year of the Space Shuttle Challenger disaster, Spectrum owners were treated to one of the finest isometric adventures ever to appear on Sir Clive's rubber marvel.

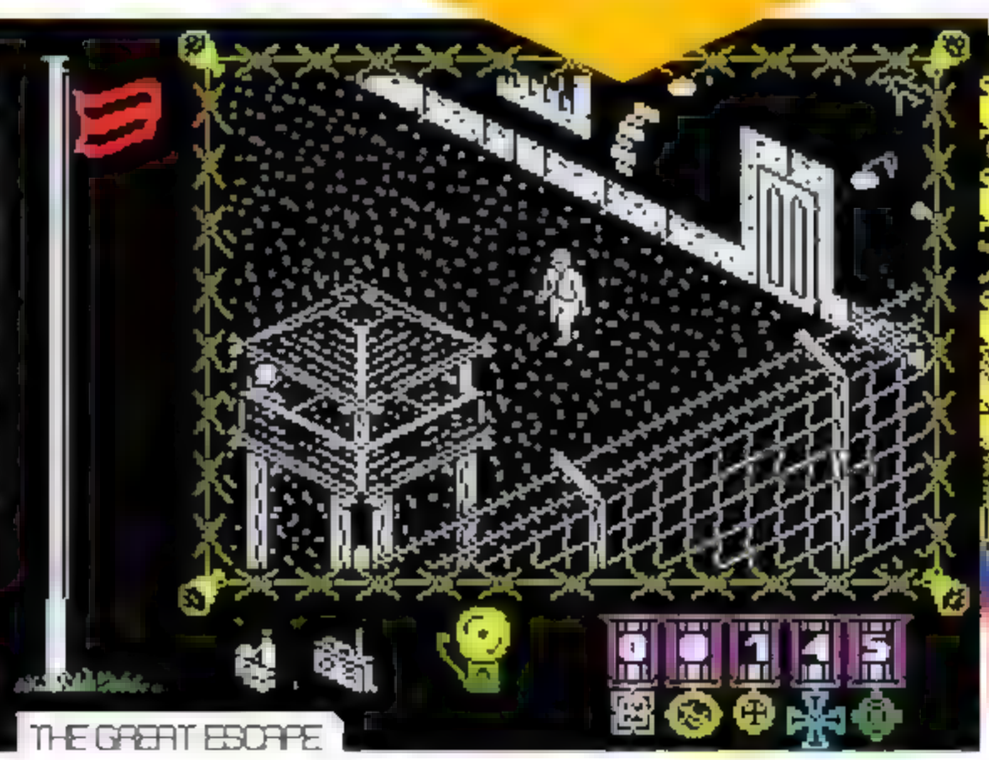
The Great Escape is set in a Colditz-style POW camp during WW and the objective is to escape before your morale is crushed and without alerting the guards and getting thrown in the cooler. What makes the game so compelling is the attention to detail and a real sense of confinement. The graphics are finely crafted and clever little touches like the morale flag, the searchlights at night, the hidden tunnels and the way you default to the 'escape' outfit if you stop playing make the game a true classic. Just look at it.

ATIC ATAC

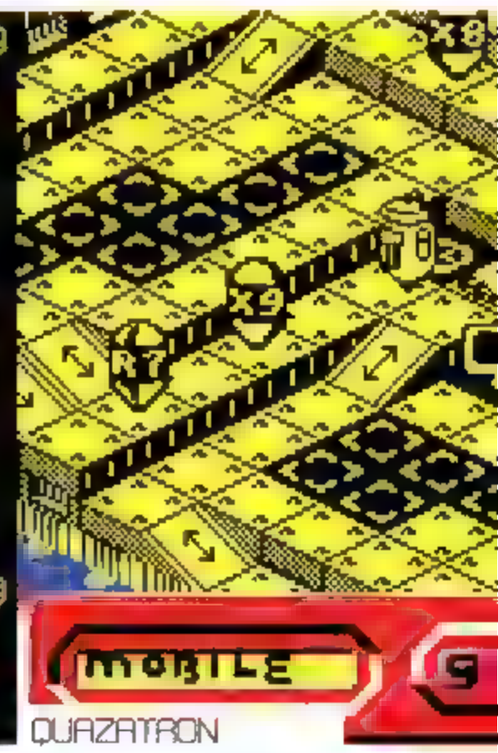
- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

No 'perfect ten' list for the Spectrum would be complete without a solid showing from the Stamper brothers and their superb Ultimate label. *Atic Atac* makes it into the list by a narrow margin – so many Ultimate games are outright classics – because it set the scene for Ultimate to dominate the Spectrum. Playing as Knight, Wizard or Serf, *Atic Atac* is an overhead perspective arcade adventure set over 200+ rooms in a gothic castle populated by endless minions, as well as Frankenstein, Quasimodo, the Mummy and, of course, Dracula. It's fast, it's challenging, and even today it provides hours of entertainment.

ANT ATTACK



THE GREAT ESCAPE

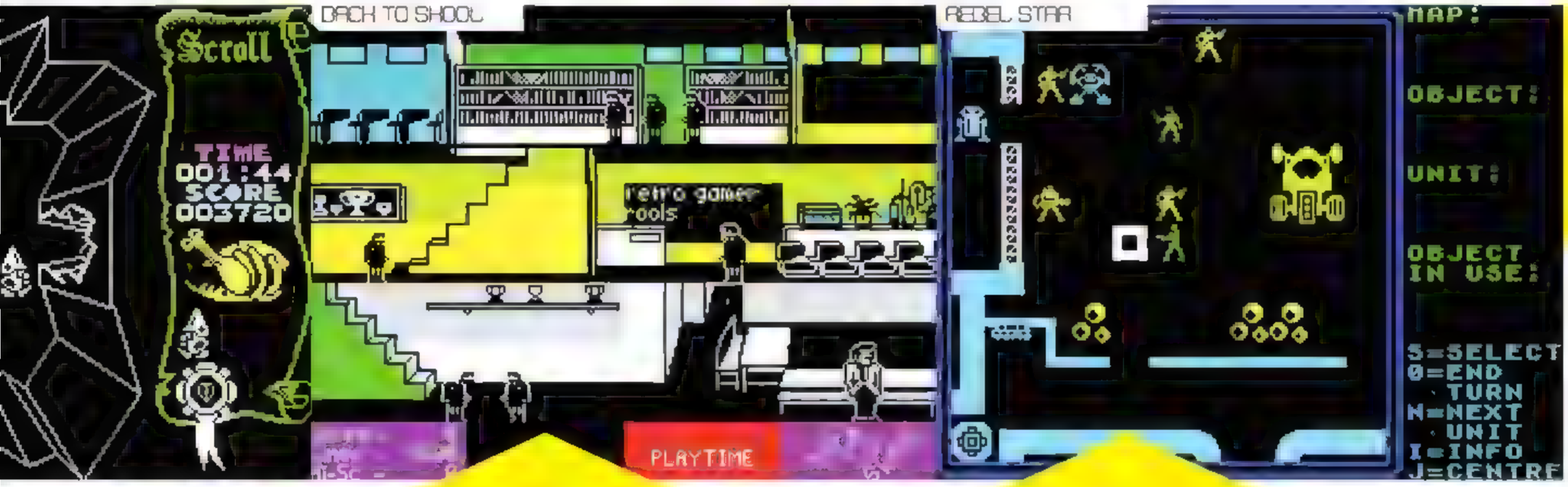


QUAZATRON

sinclair
ZX Spectrum

A magnificent machine like the Speccy deserves a well-thought-out and balanced appreciation of the ten best games

Any top ten is going to be entirely subjective and, of course, open to passionate debate, and that's what **Retro Gamer** is all about. Like-minded gamers indulging in sheer nostalgia. Bring it on.



QUAZATRON

- RELEASED:
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

We're going out on a bit of a limb here because Steve Turner's *Quazatron* is not generally considered one of the top ten Spectrum games, but hey, it's our list, right?

So what if it stole C64 *Paradroid*'s innovative grappling system and the bits to other levels are kinda smart? *Quazatron* certainly carved a niche for itself. You can tell by the clever use of colour, the detail on the droids and the *Marble Madness*-inspired gameplay. Where *Quazatron* scores highly is the player's desire to battle and strip the best parts from your fellow robots, boost their own abilities and then wipe each level clean before descending to the next. An undeniably magnificent game.

BACK TO SKOOL

- RELEASED:
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

Together with the original *Skool Daze*, *Back To Skool* represents bedroom programming at its best – quintessentially British, packed with detail and eminently playable, how could this game fail to appeal to its audience of rowdy teenagers?

Allowing the player to individually name the cast of characters was Reedy's masterstroke because it meant you could personalise and relate to them instantly. What makes *Back To Skool* such a great Spectrum game, though, is the way it plays and the *St Trinian's*-esque details – like riding the bike through the school, shooting water pistols, releasing the mouse to make the girls jump and, of course, avoiding the cane of the sinister Mr Whacker. Fond, fond memories.

JET SET WILLY

- RELEASED:
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

The follow-up to *Manic Miner* is set in a sprawling mansion – bought with the profits from mining, no doubt – and is both exciting and infuriating in equal measure. Gaming legend Matthew Smith showers you with extra lives to help you collect the 83 shining objects – and you need them as the frankly clever rooms like the Banyan Tree, Out on a Limb and the Forgotten Abbey are insane! Smith's Python-inspired characters and intriguing gameplay has sealed JSW's place in Spectrum history and led to hundreds of clones, the best of which is probably Elite's *Rollercoaster*.

REBEL STAR

- RELEASED:
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

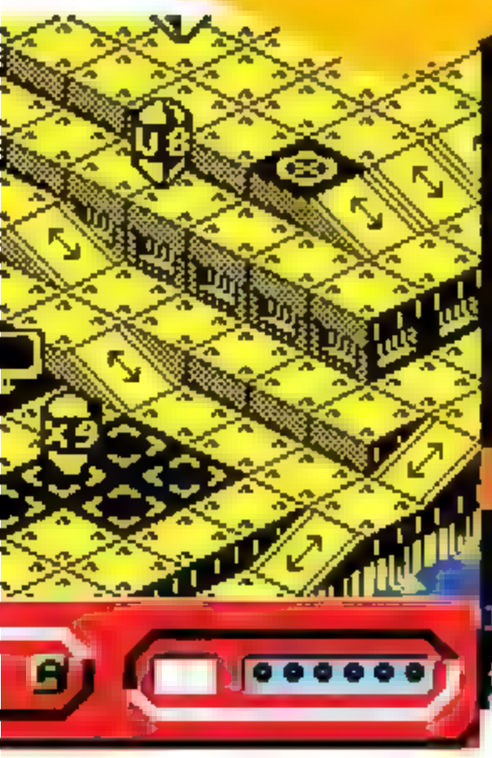
Just pipping Gollop's earlier masterpiece, *Chaos*, into our top ten, *Rebel Star* is a turn-based sci-fi strategy game in which you control either of two opposing forces in a moonbase battle.

There was also a two-player game on the flip side of the tape – and all for £1.99! What seals *Rebel Star*'s greatness is the pure strategy and cunning that must be employed to succeed – making the best of your forces' abilities and different armaments. Julian Gollop: where are you now?

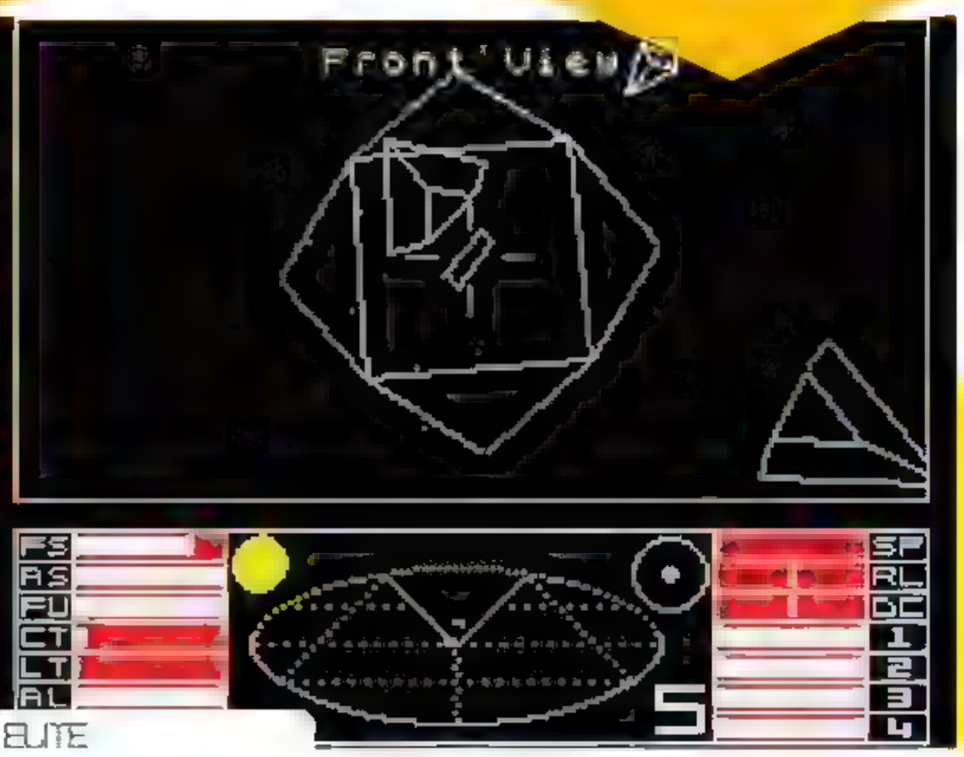
ELITE

- RELEASED:
- PUBLISHED BY
- CREATED BY
- BY THE SAME AUTHOR

No top ten could be complete without the obligatory conversion of the ultimate space trading game, and this Torus version remains faithful to Bell and Braben's original vision while at the same time adding some enhancements. That's if you could actually play the damn thing, though. *Elite* was the first ever game to utilise the Lenslock anti-piracy thingy, which managed to frustrate legitimate customers and pirates in almost equal measures. Fortunately *Elite* was worth it, with an ultra-smooth and flicker-free frame rate, impressive magenta explosions and, for the 128K, at least three special missions.



JET SET WILLY



ELITE

RETROINSPECTION

DRAGON 32

THIS IS WHY RETRO GAMER IS GREAT. ONE MONTH WE COVERED BANDAI'S WONDERSWAN, THE POCKET-SIZED CONSOLE CONCEIVED IN THE BREATH-TAKING CITY OF KYOTO, WHILE THIS ISSUE OUR FOCUS IS THE DRAGON 32, THE CHUNKY 8-BIT MICRO MANUFACTURED IN THE FORMER STEEL TOWN OF PORT TALBOT. MARTYN CARROLL CHARTS THE HISTORY OF THE DRAGON AND DISCOVERS WHY IT'S MUCH MORE THAN JUST "THAT WELSH COMPUTER"...

DRAGON DISCOURSE

A sure-fire way of pulling computer users together and creating a community is with a dedicated magazine, and for Dragon users there was, well, *Dragon User*. Published by Sunshine Publications and launched in April 1983, the monthly magazine featured a healthy mix of news, product reviews, regular columns, features, technical help and – that publishing phenomenon – type-in listings. The magazine also interviewed key people, including Dragon managing directors Tony Clarke and Brian Moore, but being an independent title it never felt the need to pay lip service to the company. With no direct competition, *Dragon User* was a popular magazine with average monthly sales of 36,000 during its first two years. Not surprisingly, however, the readership slipped and in June 1986 Sunshine announced that the magazine would only be available on a subscription basis. It was finally dropped in May 1988, only for Dragon software publisher Bob Harris to pick up the reins and personally oversee seven more issues. It was finally laid to rest in January 1989, having served the Dragon community for the best part of six years.

The Dragon 32 made its UK debut in August 1982. It was a product of Dragon Data, the Swansea-based subsidiary of toy manufacturer Mettoy. The rise and fall of Dragon Data is fascinating: a story of success and struggle, buy-ins and buy-outs. Our focus is the machine itself, so we're not going to get bogged down in all the boring corporate details.

In short, Mettoy was struggling financially and formed Dragon Data to diversify its business. It realised that the UK home computer market was about to explode and was shrewd enough to see that Sinclair, Acorn, Oric and the other manufacturers were struggling to meet the huge demand. Christmas 1982 would be a critical period and if Mettoy wanted to wrestle the market share from Sinclair it needed to act fast and have a challenger waiting ringside. That's when it came up with a cunning plan.

ANOTHER CUP OF COCO

It's reasonably well known that the Dragon 32 is a clone of the Tandy Color Computer (or CoCo as it's commonly known), a machine that achieved success in the US. They share most of the same innards, being based around the Motorola 6809 family of chips (processor, video circuitry and memory management). Even the keyboard layout and various ports are essentially the same. They're so similar that you'd assume Dragon Data simply licensed the CoCo design for use in the UK – but you'd be wrong. What actually happened was that Dragon 'borrowed' the Motorola chipset configuration on which the CoCo was based and then made a few tweaks to differentiate the Dragon 32.

The changes made not only prevented the Dragon 32 from being a complete clone of the CoCo, but rather audaciously they served to improve on Tandy's two-year-old machine. Early CoCos shipped with as little as 4KB of RAM, whereas the Dragon 32 came with 32KB of RAM as standard (hence the name). This allowed Dragon to licence Microsoft Extended Color Basic – the out-of-the-box CoCo made do with Microsoft's standard Color Basic interpreter. The serial port of the CoCo was replaced with a parallel interface for speedy, standardised printing. And externally, the Dragon 32 featured a deluxe fully moving keyboard while CoCo users had to cope with a cheap calculator-style keyboard.

So the Dragon soundly out-crafted its US cousin, but how did it compare with the other 8-bits that were clamouring for UK market

"THE CHANGES MADE NOT ONLY PREVENTED THE DRAGON 32 FROM BEING A COMPLETE CLONE OF THE COCO, BUT THEY SERVED TO IMPROVE ON TANDY'S TWO-YEAR-OLD MACHINE"

RETROINSPECTION: DRAGON 32

Year released: 1982

Original price: £175

Buy it now for: £5-£10 loose, £20-£30 complete

Associated magazines: Dragon User, The Rainbow (CoCo)

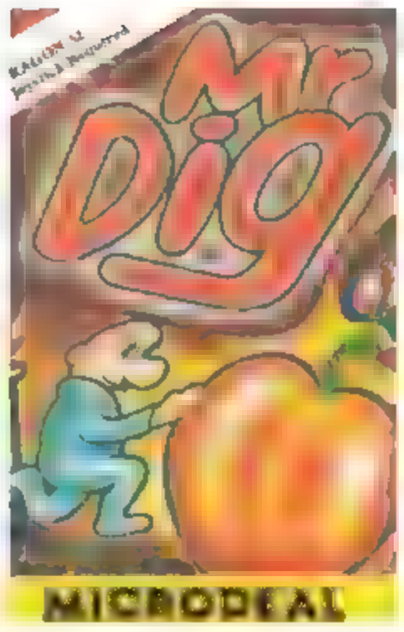
Why the Dragon 32 was great... The Dragon was an excellent general-purpose machine that catered for different types of user. Beginners were offered an excellent introduction to programming thanks to the inclusion of Microsoft BASIC, while serious users could purchase a wide range of utility and productivity software. Johnny Gamer, meanwhile, had access to hundreds of arcade and adventure titles. The Dragon could pretty much do it al

RETROINSPECT ON

DRAGON 32

The Dragon was a blatant clone of the Tandy Color Computer. Notice how even the keyboard layout is identica

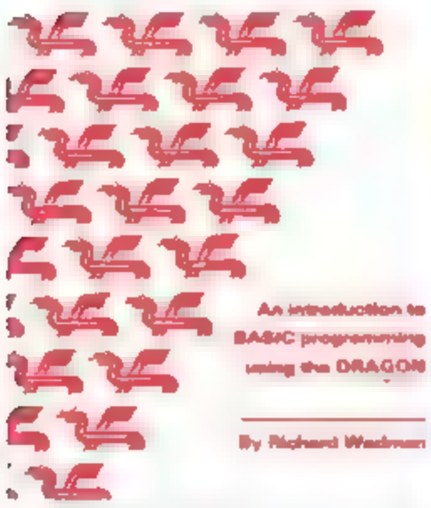
It seemed that no computer was safe from the steaming pile of filth that was *Cascade 50*. Hmmm, maybe they'd sell more copies if they gave away a free gift, like a fantastic calculator watch.



The industry may have been more innocent back then, but when it came to copying the latest coin-op hits, most publishers were guilty as hell.

Dragon MDs Tony Clarke and Brian Moore were happy to be quizzed in the independent *Dragon User* magazine

The brochure promoted the Dragon as "The Family Computer" and made some bold claims – a few of which were actually true.



Written by Richard Wadman, Dragon's marketing director, the programming manual was easy to follow and genuinely useful

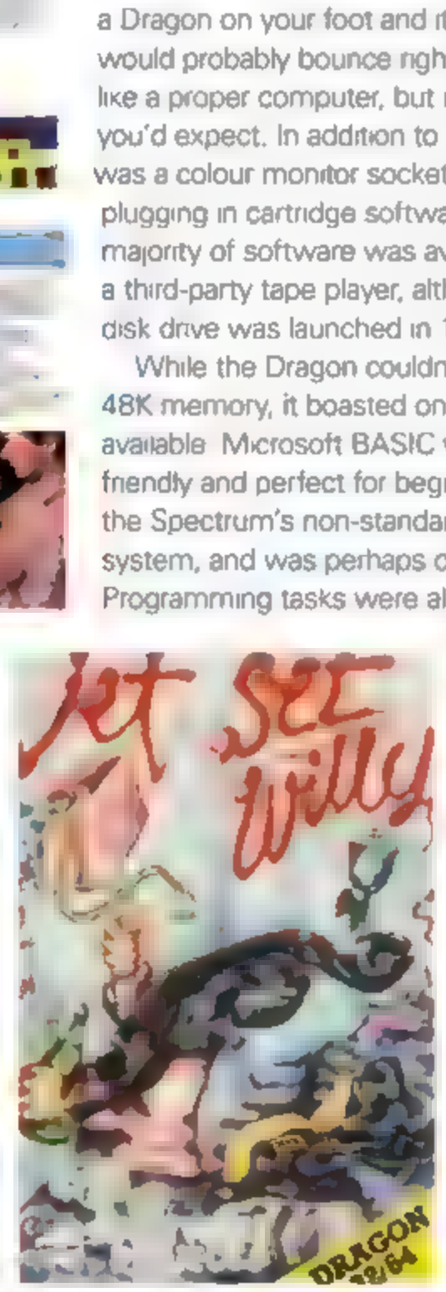
share? We can ignore the Commodore 64 for the time being, because while it was released at the same time as the Dragon, its initial retail price was £299. The Dragon's battleground was the cutthroat sub-£200 sector, which, in late-1982, was firmly under Sinclair's control. The Spectrum 48K and the Dragon initially retailed for the same price (around the £175 mark), but stick them side by side and it's hard not to smile – the Speccy really does look like a child's plaything next to the Dragon, with its robust cream case and professional typewriter style keyboard. Drop a Dragon on your foot and it would hurt, whereas a Spectrum would probably bounce right off. Not only did the Dragon look like a proper computer, but it had all the ports and connectors you'd expect. In addition to the parallel printer interface there was a colour monitor socket, twin joystick ports and a slot for plugging in cartridge software. Like the Spectrum, the vast majority of software was available on cassette and loaded via a third-party tape player, although an official Dragon 5 25-inch disk drive was launched in 1983.

While the Dragon couldn't match Spectrum's generous 48K memory, it boasted one of the best versions of BASIC available. Microsoft BASIC was quick, command rich, user friendly and perfect for beginners. It was clearly superior to the Spectrum's non-standard, nonsensical one-touch BASIC system, and was perhaps only bettered by BBC BASIC. Programming tasks were also aided by the Dragon's CPU, the Motorola 6809E. The 8-bit processor exhibited some 16-bit traits and could reasonably out-power the popular Zilog Z80 and MOS 6502 CPUs that were inside almost every other machine available at the time. However, it was the 6809's individuality – promoted as a unique selling point – that would ultimately clip the Dragon's wings.

"IT WAS THE PROCESSOR'S INDIVIDUALITY – PROMOTED AS A UNIQUE SELLING POINT – THAT WOULD ULTIMATELY CLIP THE DRAGON'S WINGS"

PLAY THE GAME

Now, despite what the stuffier computer magazines of the day claimed, most of us weren't buying computers to spin data on a spreadsheet or drive a home business database. The



Two of the most popular 8-bit platformers appeared on the Dragon, and easily held their own against other versions.

Microdeal must have spent Cuthbert's inheritance on advertising – full-page colour ads for its games appeared in most issues of *Dragon User*.

SIMON HARDY Q&A

In putting together this article, Simon Hardy of **www.dragon-archive.co.uk** offered invaluable help and assistance. As a way of saying thanks, we invited Simon to tell us a bit about himself and publicise his excellent resource..

When was the very first time you used a Dragon computer?
When I was ten I received a Dragon 32 for my birthday and I fondly remember sitting with my parents playing *Quest* or *Horse Race*. It didn't take me long to start learning to program thanks to the excellent manual that came with the Dragon 32

What do you think are its main assets?
I loved that fact that it had a proper keyboard, it could be modified and expanded easily (disk drives, modems, HAM radio, digital I/O boards, memory upgrades and so on) and was more than just a machine to play games on. Serious software such as Forth, word processors and even a simple DTP package quickly appeared. With the introduction of the Dragon 64 and OS9 even more professional software became available

The National Dragon Users Group was a great source of humour, support and information about what else you could do with your Dragon when you got bored of just playing the games

Could you outline the history of the Dragon Archive?
The archive was founded by myself some years ago to try to collate and preserve information and software relating to the Dragon range of computers. A number of people provided valuable input and material – notable contributors include Ross Hamilton for the content of his defunct Dragon Software Archive and Richard Harding for details of all the prototype machines. Since then a community has grown up around it, with many members contributing to the growing collection of software, books and information. We now have around 40 per cent of all advertised Dragon software archived along with tools to allow collectors to restore damaged tapes and disks. The community is made up of a small number of people who have usually grown up with the Dragon as their first machine and wish to continue the memory. This includes collectors and archivists, emulator authors, and programmers of some of the original games from the Eighties

What plans do you have for the site in the future?
More of the same. My time is limited so I have to be careful about priorities when it comes to additions to the site. I am currently in the process of uploading every issue of *Dragon User* magazine and would like to see the information section grow in content

How can Dragon users help?
I know there are lots of retro collectors out there and some of them may have Dragon software tucked away. I'm always on the lookout for any tapes or disks that the archive doesn't currently have, and I can provide assistance and instructions for the entire process of preserving software

Would you like to see more homebrew software developed for the Dragon?
Yes, the Dragon is an excellent machine to code for. Whether or not it's possible to launch commercial homebrew as currently occurs on other platforms remains to be seen, but I'd love for people to release homebrew into the community. I can even set up a section on the website if people are interested

Most publishers have some skeletons in the closet. For CRL it was probably these low-rent arcade rip-offs

entertainment market was massive and more often than not it was the quality and quantity of available games that prompted buying decisions. In particular, the acid test was how accurately a home computer could mimic the latest arcade titles

The Dragon 32 was a capable games machine, but no amount of customisation could hide the fact that the core CoCo technology was already two years old. The sound capabilities were fine – a single square-wave oscillator could be controlled using simple commands – but the graphics were lacking. The Dragon had seven levels of resolution – two lo-res text modes and five hi-res graphics modes. Nine colours in total were available, but there was a trade-off between colour and resolution. For example, at the highest possible resolution (256x192) it could only display two colours (black-and-white or black-and-green). A further frustration was that the text and graphics modes could not be mixed, so in games it wasn't possible to easily print legends on screen like "score" or "status"

To compound matters, UK software houses did not throw support behind the Dragon because its programmers had little or no prior knowledge of the 6809. By 1983 it was clear that for a game to be a commercial success it had to be released on as many platforms as possible and this was usually done by porting the code between machines with the same processors. The Dragon, however, was effectively outcast because of its unique CPU. To write for the Dragon meant starting from scratch and many developers couldn't justify the time and cost

There were a few exceptions. Well known UK software houses such as Ocean, Imagine, Beyond and Software Projects all dabbled with the Dragon, while CRL and Incentive released a number of quality titles for the computer. In addition there was a small amount of homegrown software, but it was nowhere near enough to satisfy starved Dragon owners. To fill the gap, Dragon Data once again looked to the US market. Over there, a good amount of decent CoCo software had built up and Dragon Data set about licensing it for sale in the UK. Due to the fact that the BASIC ROM was arranged slightly differently on the Dragon, most CoCo cassette software would not load, but they could be fixed using a fairly simple conversion process. Cornish software house Microdeal also began to convert CoCo software for sale on these shores and quickly grew to become the Dragon's most prolific publisher, releasing over 200 games between 1982 and 1988. It's best remembered for its fast-paced arcade games, particularly those starring bespectacled company mascot Cuthbert

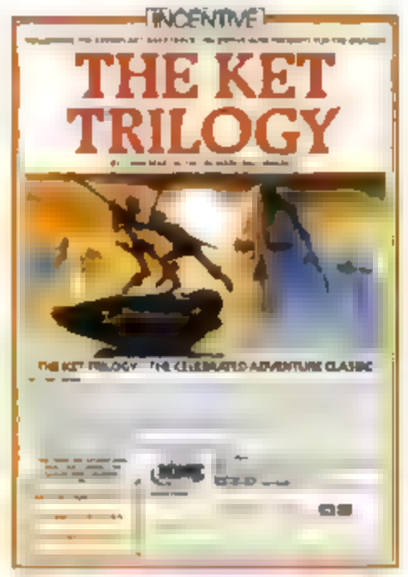
DRAGON'S BANE

Initial sales of the Dragon 32 were impressive. In the first six months around 40,000 machines were sold, many of these in the Boots chains of chemist. The decision to partner with a high-street store was clever, because it meant that potential buyers could see the computer, test drive it and then take one home if they desired. Compare this to Sinclair's notorious mail-order department, which left customers waiting months for their machines

Strong sales saw other high-street names clear space for Dragon stock. Manufacturing was moved to a large factory in Port Talbot and production was ramped up to meet demand. However, Dragon failed to consider that sales would naturally fall off during the spring and summer, and the stock began to pile up. It can't have helped either that the competition had become fiercer than ever. The plucky Oric-1 launched in January 1983, and in the summer Sinclair famously slashed the price of its Spectrum, with the 16K model nestling just under the £100 mark

After a number of delays, November witnessed the UK launch of the Dragon 64. As the name suggests, this was basically a standard machine with double the amount of memory. But at £225, the upgraded model wasn't attractive enough to tempt the Dragon 32 faithful into upgrading (despite a generous trade-in offer and the impending release of the OS9 operating system). Dragon Data's response was to announce two new models – the Dragon 128 (aka 'Beta') and the Dragon Professional (aka 'Alpha') – but in July 1984, before either machine could materialise, the cash-strapped firm was forced to call in the receivers. As a postscript, a Spanish company called Eurohard acquired the Dragon assets and trundled along for a couple of years, releasing the Dragon 200 (essentially a Dragon 64 with a Spanish keyboard), before it too fizzled out

The Dragon was dead – or maybe not quite. As news of Dragon Data's demise spread, stores quickly began to offload their Dragon stock at bargain prices. Generous bundles were available for as little as £80, and Dixons slashed the price of the Dragon disk drive to £100 (it launched at £275 less than a year earlier). Punters who either didn't know or didn't care about the parent company's collapse snapped up the stock, swelling the user base. And what did it really matter that Dragon Data was no more? It had done its job – the hardware was in the hands of users and software support would continue for years to come



Popular software house Incentive supported the Dragon for several years, releasing both arcade games and more involved adventure titles

REBORN IN THE USA

In 1983 Dragon Data decided to try to break into the US market. This was an unexpected twist, seeing as it would put the Dragon into direct competition with its non-identical twin, the Tandy Color Computer. Following negotiations with several companies, Dragon set up a partnership with the US-based Tano Corporation who would manufacture and distribute the machine in America. It was decided that the Dragon 64 would fare better in the US, so in August the machine was launched Stateside as 'Dragon by Tano'. Dragon was so keen to assail the American market that the machine was released there two months before the UK Dragon 64 launch. According to Dragon MD Brian Moore, the machine was "very well received in the US", although Tano stopped supporting the Dragon in late 1984, suggesting quite the opposite. The entire stock was later purchased by California Digital (**www.cadigital.com**) who can still sell you a brand new shrink-wrapped Tano Dragon for $35 plus tax and shipping

DRAGON 32
PERFECT TEN GAMES

There were hundreds of games that were released for the Dragon 32, including a few familiar titles and lots of system exclusives. Here are ten of our personal favourites in no particular order

01

CHUCKIE EGG

- **RELEASED:** 1983
- **PUBLISHED BY:** A&F SOFTWARE
- **CREATED BY:** MIKE WEBB
- **BY THE SAME DEVELOPER:** SCREAMINGABDABS

01 The Dragon version of this classic platformer was not an afterthought; it was developed in tandem with the more famous Spectrum and BBC Micro editions. And despite what Beeb fans might say, *Chuckie Egg* on the Dragon just about nicks it as the best incarnation of the game. It's vibrant (as you'd expect, seeing as it uses that classic Dragon colour set of green, yellow, blue and red), fast paced, bucket loads of fun to play and it also represents a serious long term challenge, although we still have no idea whether or not it features the full selection of levels – mainly because our skills in the chicken shed are sadly lacking these days

JET SET WILLY

- **RELEASED:** 1985
- **PUBLISHED BY:** SOFTWARE PROJECTS
- **CREATED BY:** ROY COATES
- **BY THE SAME DEVELOPER:** MANIC MINER

02 This is something of a curiosity in the *Jet Set Willy* canon, and not just because it's the only monochrome version (the only way of successfully re-creating the game was in high-resolution mode). As a way of compensating Dragon owners for the absence of colour, programmer Roy Coates added 13 extra rooms to Miner Willy's already ridiculously oversized mansion. Part of the fun is in finding the additional rooms – you'll probably want to revisit the beach and explore the forgotten abbey. Coates obviously had a fine sense of humour as one of his additional rooms is entitled 'Matthew's Next Game', and it's completely empty

02

DONKEY KING

- **RELEASED:** 1983
- **PUBLISHED BY:** MICRODEAL
- **CREATED BY:** TOM MIX SOFTWARE
- **BY THE SAME DEVELOPER:** KATERPILLAR ATTACK

03 The Dragon was home to hundreds of coin-op clones, which was only to be expected in those heady days of the early-Eighties. Of them all, *Donkey King* is the most blatant – not to mention the best. It's almost a carbon copy of Nintendo's original, only with everything viewed in lurid Dragon-o-vision. All four levels are featured, Mario and Kong are there, and the manic gameplay is exactly the same. In fact, we'd go as far as saying that it's better than many of the official home conversions. Realising that it was sailing a little too close to the wind, Microdeal later changed the title to *The King*

DEVIL ASSAULT

- **RELEASED:** 1983
- **PUBLISHED BY:** MICRODEAL
- **CREATED BY:** TOM MIX SOFTWARE
- **BY THE SAME DEVELOPER:** CATERPILLAR IN THE JUNGLE

04 *Devil Assault* is a clone of Imagic's *Demon Attack* – see what they did with the name? If you're unfamiliar with the original, it's basically a trippy version of *Space Invaders*, with the player having to shoot down a number of fast-moving enemies. *Devil Assault* retains the original's speed and silenced any accusations that the Dragon could only cope with slow-paced platformers and maze games. A unique feature is that, once fired, your shot follows the path of your ship so you're able to effectively home in on enemies. It's as hectic as hell and one of the best arcade shooters on the machine

ROMMEL'S REVENGE

- **RELEASED:** 1984
- **PUBLISHED BY:** DESIGN-DESIGN
- **CREATED BY:** RAINBOW SOFTWARE
- **BY THE SAME DEVELOPER:** DARKSTAR

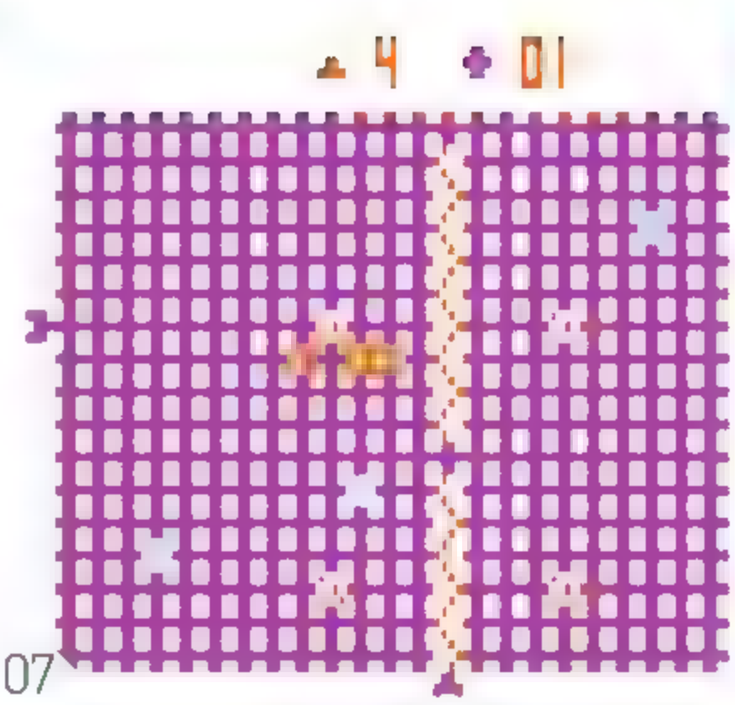
05 This deserves special mention because of how it imitates a vector graphic display. Naturally, it makes use of the Dragon's highest resolution mode, but the black-on-green display works much better than the plain black and white. Unlike many vector conversions from back in the day, *Rommel's Revenge* is genuinely a joy to play thanks to the speed and smoothness of the graphics. The gameplay is also great, nicely re-creating the atmosphere and tension of the arcade original. Shooting enemy tanks and watching them explode in a shower of vector shapes is as enjoyable as ever

03

04

05

06



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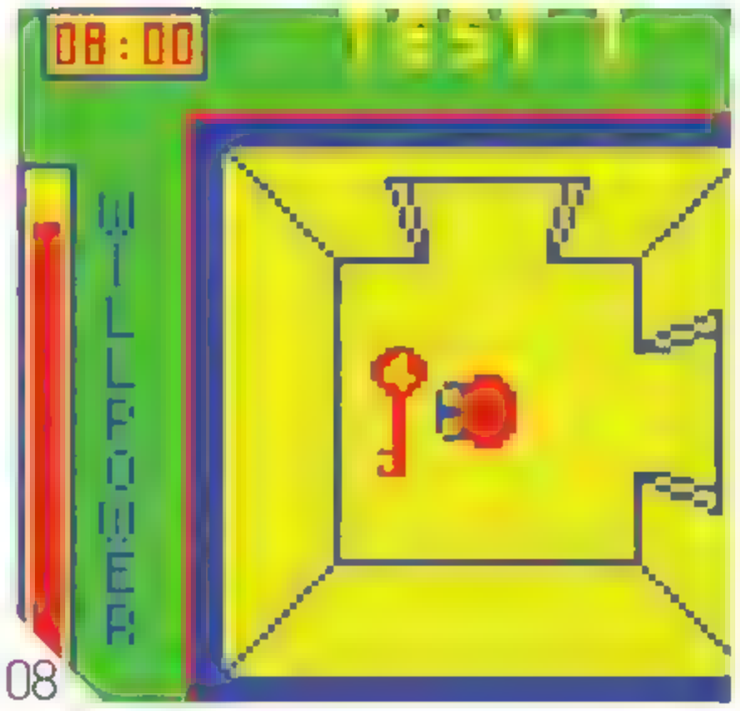


08

LEGGIT

- **RELEASED:** 1[illegible]
- **PUBLISHED BY:** MAGINE S[illegible]FTWARE
- **CREATED BY:** N-HOUSE
- **BY THE SAME DEVELOPER:** PEDRO

06 Anyone who has played *Jumping Jack* on the Spectrum will be familiar with this: it's the same game only with a different name, for reasons we can't quite grasp. *Leggit* is often overlooked due to its basic graphics and blip-blip sound effects, but to ignore it on these ground would be madness. The basic premise is to reach the top of each screen by jumping through the gaps in the moving platforms. However, if you bang your head or clash with an enemy it's very likely that you'll get bumped down to the bottom of the screen. So it's try, try and try again. Brilliantly simple and simply brilliant.

GRIDRUNNER

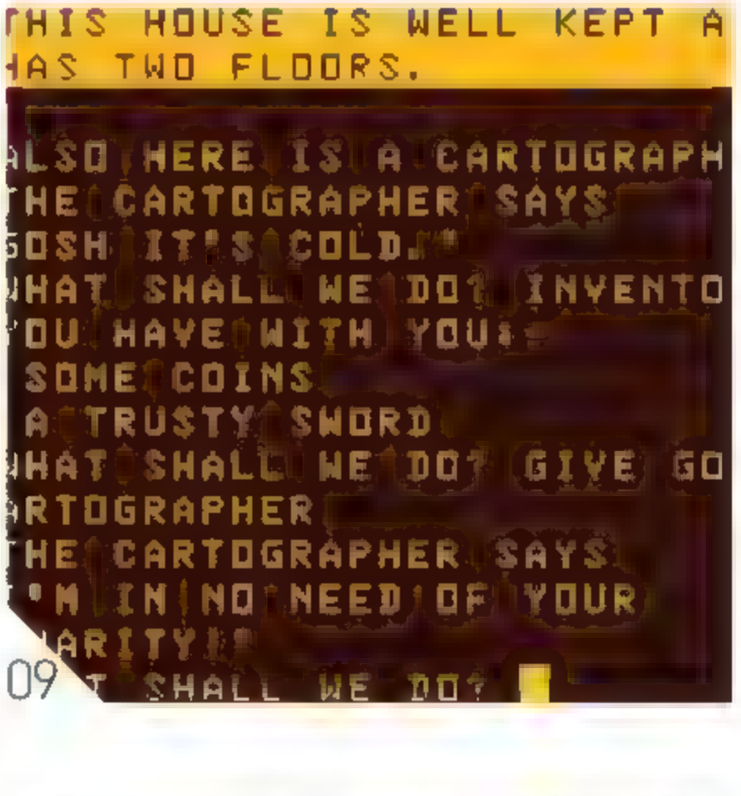
- **RELEASED:** 19[illegible]
- **PUBLISHED BY:** SALAMAN[illegible]R
- **CREATED BY:** JE[illegible]MINTER
- **BY THE SAME DEVELOPER:** [illegible]

07 Jeff Minter's *Centipede* remix is a very welcome addition to the Dragon's software catalogue. There's nothing unique about this particular version of the game – the graphics are nice and chunky, looking a lot like the Vic-20 version – but the core gameplay lifts it above many of the competing shooters on the Dragon. Having to blast the space worms that attack from the top of the screen while dodging the debris and avoiding the laser fire from the side and rear, still makes for an intense gaming experience today. For Dragon-owning Yak fans, Salamander also released *Lazer Zone* for the system.

BACKTRACK

- **RELEASED:** [illegible]
- **PUBLISHED BY:** IN[illegible]IVE
- **CREATED BY:** C.M.ANDREW
- **BY THE SAME DEVELOPER:** M[illegible]N[illegible]TA

08 This little-known maze game is one of the most refreshing titles available for the Dragon. Guide the main character through a warren of interconnecting rooms, searching for the series of keys that are needed to unlock the exit. To complicate matters, the keys must be collected in the correct order, and the first one you need will usually be the last one you find – hence the backtracking of the title. There are also snakes, spiders and other nasties to avoid, and your constantly draining willpower forces you to find food. The presentation is excellent, with a psuedo-3D effect representing the movement between rooms.



09

THE KET TRILOGY

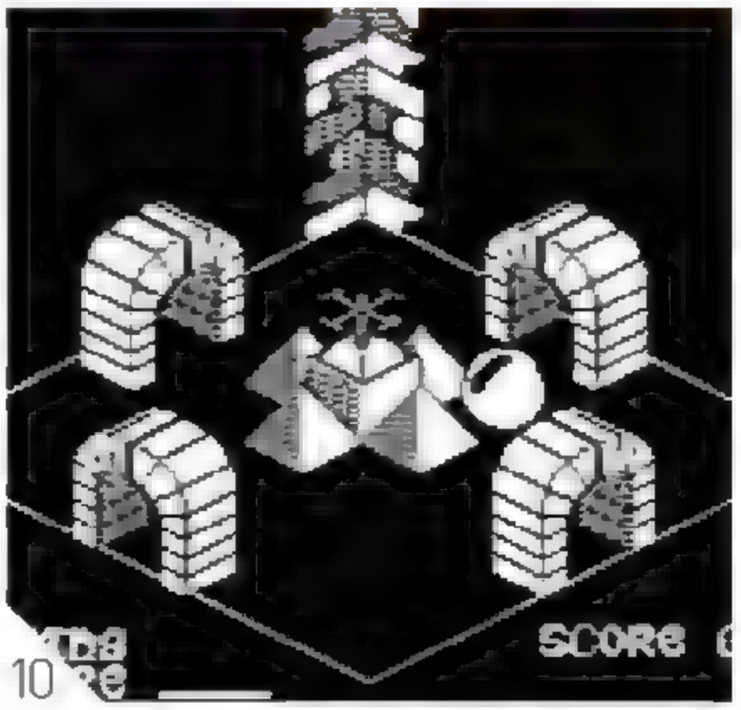
- **RELEASED:** 1985
- **PUBLISHED BY:** INCENTIVE
- **CREATED BY:** J.MARTIN AND R.M[illegible]ORMACK
- **BY THE SAME DEVELOPER:** BACKTRACK

09 The Dragon wasn't the best platform for text adventures. There was no lower-case font for a start, so everything was capped up, and because of the resolution limitations, developers couldn't easily add location graphics to text descriptions. For adventure game fans, *The Ket Trilogy* was probably the best bet as it contained three challenging, well-written adventures for one very nice price (it was especially good value when you considered that the three parts were released separately as full-price games for the Spectrum). To round off this quality release, the inlay was adorned with some typically heroic Oli Frey artwork.

AIRBALL

- **RELEASED:** 19[illegible]
- **PUBLISHED BY:** M[illegible]G[illegible]AL
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** ARM[illegible]DDON, AMIGA ST

10 Released in 1987, *Airball* proved that there was still a market for quality Dragon software. This isometric adventure sees you rolling a ball around a series of tricky 3D levels, trying to find a mysterious spell book (or something like that – we were always too busy gawping at the graphics to try and figure out what the hell was actually going on). You need only to compare this to any game released on the Dragon in 1982 or 1983 to release what a giant leap forward it represented. It was later ported to several superior systems, including the Amiga, Atari ST, PC and (unofficially) the Game Boy Advance.



10

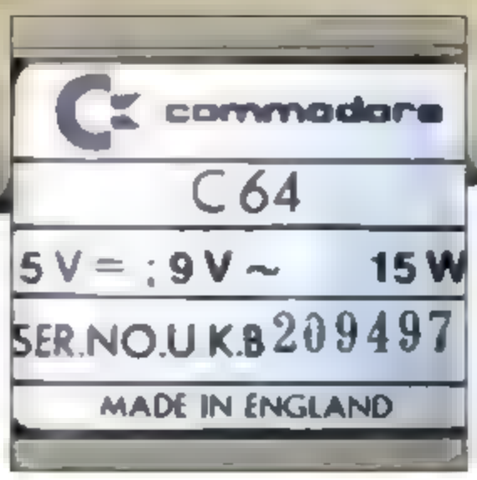
Year released: 1982

Original price: US August 1982 ($595), UK December 1982 (£349.99)

Buy it now for: £10-£15

Associated magazines: Zzap!64, Commodore User, Commodore Format, Your Commodore

Why the C64 was great... The Commodore 64 was a jack-of-all-trades and a master of many. Success on both sides of the Atlantic meant its software library covered every genre, style and influence possible, with a panache most other machines struggled to equal. Despite Commodore's insistence on pushing it as a business computer with a price to match in the UK, it truly was the gaming platform to own. Even though it looked like a beige breadbin



commodore 64

AFTER THE VIC-20 ENJOYED A SUCCESSFUL LAUNCH, AND WITH SOME NEWLY DESIGNED CHIPS WAITING IN THE WINGS, COMMODORE WAS NOW WONDERING WHERE TO GO FROM THERE. MAT ALLEN LOOKS AT HOW ONE DECISION WAS THE GENESIS FOR ARGUABLY THE GREATEST AND BESTSELLING HOME COMPUTER EVER

Commodore was not immediately looking for a successor to the Vic-20. The launch had been a bigger success than expected, and work on the newly commissioned video and sound chips was reaching a conclusion. The new VIC-II video chip was an improvement on the chip inside the Vic-20 and utilised (or borrowed you might say) features from other leading computers and consoles of the time. The SID sound chip was something new, a three-channel synthesiser that would end up blowing away the competition for years to come.

Both chips had been scheduled for use in arcade or dedicated videogames. However, upon their completion in November 1981, Commodore boss Jack Tramiel decided they would instead be used in the company's next home computer. A computer that he wanted to debut at the Las Vegas CES in January 1982. A computer that had yet to be designed. Not to be deterred, the new machine was designed in two days and five prototypes were built by the end of the year.

With the Microsoft BASIC of the Vic-20 hastily rewritten for use on the new hardware, the machine was ready for show. Apart from the impressive specifications of the C64, which exceeded anything on the market, no one could understand how Commodore was proposing to sell it for just $595. Their jaws would have been through the floor if they'd known it would be initially manufactured for just $135.

The project and its inherent cost savings probably would not have happened without the acquisition of MOS Technology several years earlier. Not only did they have the expertise and experience, with many other companies using the 6502 CPU, but also the production line facilities enabled chips to be manufactured a lot cheaper and quicker than other companies could achieve. Using the same case and keyboard as the Vic-20 was another factor; aside from halving the cartridge slot size to make way for an internal modulator, the design of both was actually somewhat similar.

The C64 went on sale in August 1982 and was an immediate success. A few issues had been fixed before launch, and a few,

Not So Big In Japan

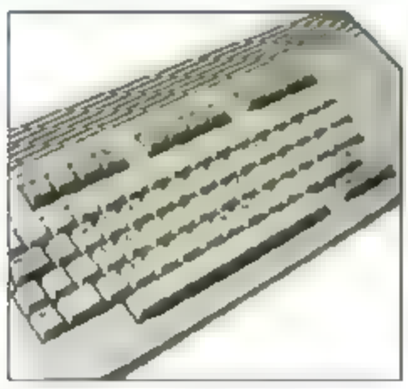
Many people do not realise Commodore had launched the Vic-20 in Japan (as the Vic-1001) several months before it was available in the West in an attempt to acquire market share in the territory. With the imminent launch of the C64, Commodore had a second stab at Japan. However the aim was to sell an entry-level machine at a much cheaper price than the C64 would be in the US.

The resultant MAX computer, encased in a membrane keyboard was, hardware wise, very similar to a normal C64. To save costs there was no serial port, no monitor port, virtually no RAM and no internal OS, meaning for all intents and purposes it was a console with a keyboard. Games could only be loaded from cartridge, and the keyboard had little real use unless one of the limited programming modules was acquired.

Not surprisingly, the machine hardly sold and today commands a respectable collectors value. Most of the games were programmed by HAL Labs (who are now with Nintendo) and are equally collectable. In a shrewd move Commodore added a MAX mode to the C64 meaning that the cartridges will play fine on it.

"APART FROM THE IMPRESSIVE SPECIFICATIONS OF THE C64, WHICH EXCEEDED ANYTHING ON THE MARKET, NO ONE COULD UNDERSTAND JUST HOW COMMODORE WAS PROPOSING TO SELL IT FOR JUST $595"

commodore 64



One Step Beyond

Although technically superseded by the Amiga, the C64 was still going strong by 1990. Keen to capitalise on the machine's consistent popularity Commodore commissioned an internal project to upgrade the computer for the new decade. The result was the C65, a machine with considerable power inside such as the new VIC-III chip, VGA capability, greater RAM and two SID chips for stereo sound) but with the ability to still play roughly three quarters of the current C64 games. Anticipation and excitement about the machine grew, as witnessed by copious letter writing to magazines at the time. And then for whatever reason, it was cancelled in mid-1991, apparently at the request of then-chairman Irving Gould in deference of keeping the C64 alive. The potential that the machine offered would never be realised.

That was not to say no one would get to play with the hardware. When Commodore was liquidated in 1994 many of the machines housed at its Toronto office sneaked out into the general domain and were rapidly grabbed by fans and collectors, though it was soon found many were in various states of completion and revision. Today it remains an interesting curio, one sadly that never came to be.

such as those perfected by Ultimate, and anything vector graphic driven. The design of the C64 was not suited to either. That wasn't to say it couldn't be done, as the classic *Mercenary* and the conversion of *Head Over Heels* demonstrate. The C64 made a better stab at anything coming its way from the Spectrum compared to anything going the other way.

However C64 users in the UK didn't just have to rely on homegrown games to satisfy their needs. From early on, they were able to sample the delights of American games, courtesy of companies such as US Gold and Ariolasoft releasing or importing them for sale. Some users, though, would take to importing the games themselves. Quite often this would be the case with some high profile titles, until the companies in question (Infocom, we look at you) decided to send them over here.

For the first couple of years of the C64's life, games from the likes of Epyx, Access, Synapse, Broderbund and Infocom were better than almost anything programmed in Europe. Watching *Impossible Mission*, *Beach-Head*, *Choplifter* or *Lode Runner* being demonstrated was amazing. This was also a time when Electronic Arts published innovative games such as *M.U.L.E.*, *Racing Destruction Set* and *Skyfox* instead of bundles of shovelware. Thankfully, programmers this side of the pond got their backsides into gear and started matching the imported efforts.

You have to begin with Jeff Minter, creator of weird addictive programs, who was given a C64 very early on as part of his deal with HES in the US. The three games *Ancipital*, *Revenge Of The Mutant Camels* and *Indis Alpha* are some of his best work, and would have been hard to achieve on any other platform. He was just the first of many developers, as Tony Crowther (*Loco*, *Blagger*), Geoff Crammond (*Revs*, *The Sentinel*), Archer Maclean (*Dropzone*, *IK*), Jon Hare and Chris Yates (*Parallax*, *Wizball*), and Paul Woakes (*Encounter*, *Mercenary*) would all follow.

including the notorious "sparkle" effect, would be dealt with in the months immediately after. Most of these were fixed by the time the second revision (B) motherboard was produced. Revision A machines are today hard to find (estimated less than 0.2% of the 25-odd million production run) and are collectable because of their quirks and bugs.

From the off it was obvious Commodore (aka Tramiel himself) meant business and was going for the throats of the competition, especially Atari. The price of the C64 was down to $395 before Christmas, and was under $200 by 1985, with manufacturing costs

"JAWS WOULD HAVE BEEN THROUGH THE FLOOR IF THEY'D KNOWN IT WOULD BE INITIALLY MANUFACTURED FOR $135"

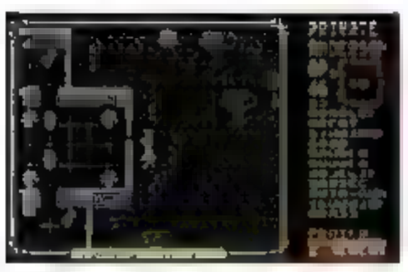
cut by two-thirds. By that time the C64 was the home computer to own in the US. This was in contrast to the UK, where Commodore's operation was a little less price conscious. It stayed above the £200 mark for a long time, and peripheral prices were of a similar nature, at one point the disk drive cost more than the machine itself.

This does seem strange given the Commodore 64 had far more competition in Europe than in the US, especially from the Spectrum. While the C64 won the hearts of gamers in the Netherlands, Germany and Scandinavia, it was beaten to number one in several other countries including the UK, France and Spain. In the UK the battle was always with the Spectrum. At almost half the price for much of the Eighties, the Spectrum was a cheaper alternative that was also home to many classic games.

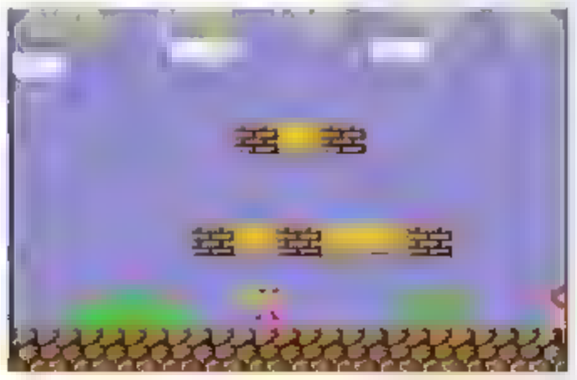
Why pick the C64 over the Spectrum? Anecdotal evidence points to its form and function as much as its power (the "real" keyboard being a selling point), with the price tag partly seen as a badge of status. Playground battles would be fought with both sides arguing their case, with levels of tribal loyalty and dedication rarely seen since. Technically the C64 was streets ahead, but there were aspects where the Spectrum was superior. That was mainly isometric adventures,

Just as can be seen between Western and Japanese game design today, there was a similar dichotomy in games produced here and over there. Different influences, different cultures, different trains of thought. There was also another good reason for why the US produced the majority of the RPGs, strategy games and adventures: the disk drive. By 1984 the datasette had all but been abandoned by users and publishers alike in the US, whereas in the UK it was seen as a cheap method of storage pioneered by the continued success of other computers. There are numerous examples of two versions of a game being written, one example being the movie tie-in *Aliens*. The Electric Dreams UK version is a first-person adventure type affair, whereas the Activision US release is multiload, and portrays the whole film in various stages. In terms of execution, the UK version recreates the terror of the film, whereas the US version is more big-budget but far less effective in its execution.

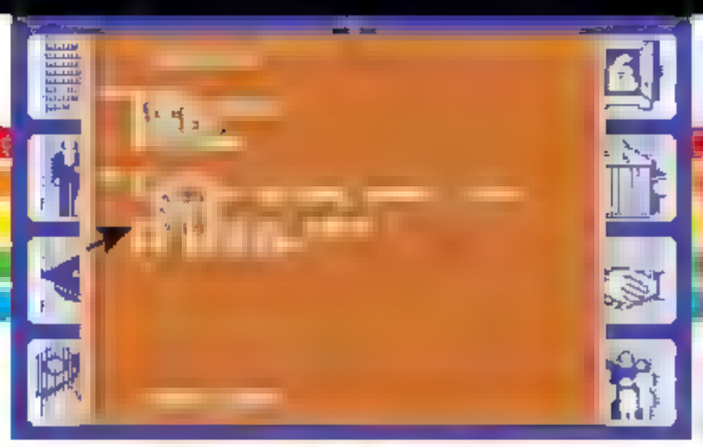
Like it or loathe it, the tape format would define the games written in the UK for the first few years of the C64's life, until the inevitable progress and demand for bigger games forced more multiload antics onto the hapless users. Let's face it, tape wasn't really cut out for that sort of access, but with the introduction of fast loaders into the



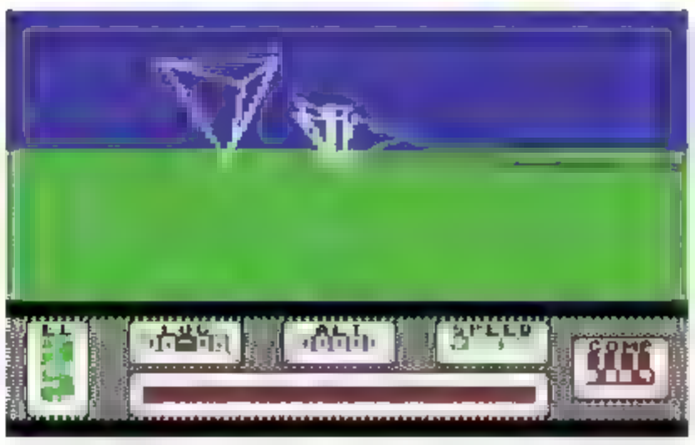
C64 owners finally got a taste of Julian Gollop's genius when this masterpiece of strategic turn-based warfare was released for formats other than the Spectrum.



No hardware is ever immune from controversy, and these three games are proof positive the clones can be as good as the real thing. *Cuthbert In The Jungle*, *Katakis*, *The Great Giana Sisters*.

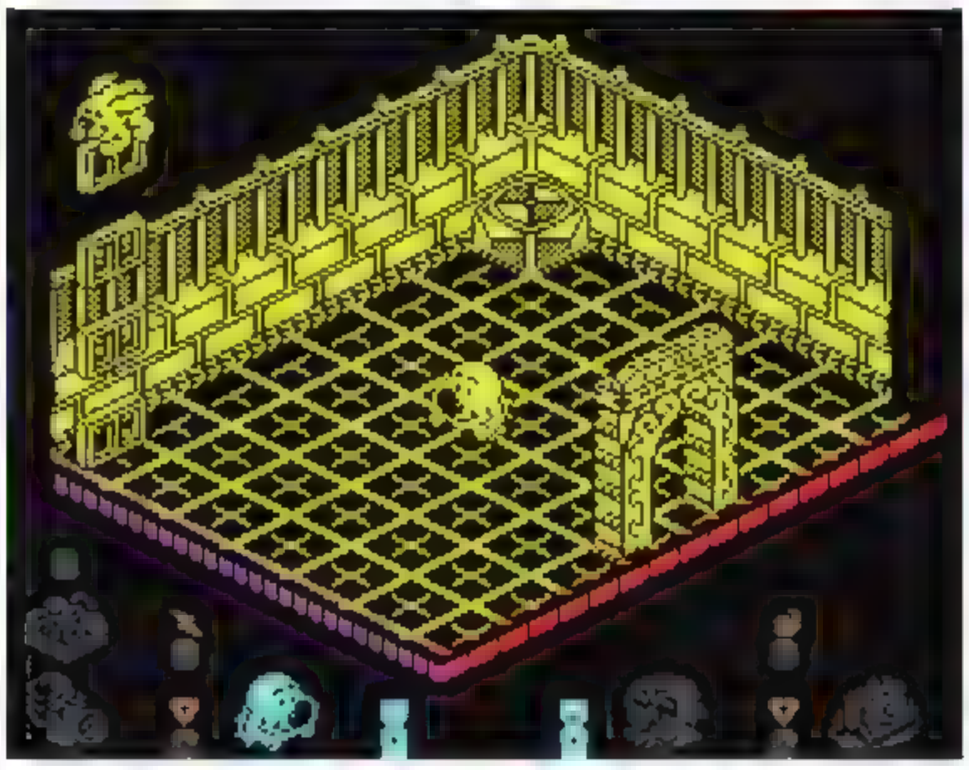


Using the flexibility of the disk drive, there were some terrific and unique ideas prevalent on the C64, including this trio of releases from Activision. *Alter Ego (top left), LCP (above), Portal (bottom left)*

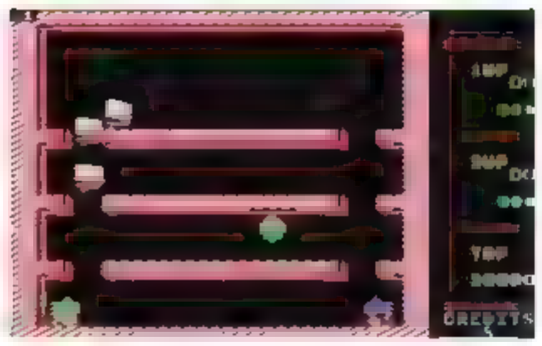


Paul Woakes needs to be tracked down to explain just how he managed to fit a whole world of wonder into 64K of RAM. Who says the Commodore 64 can't do vectors?

A Spectrum conversion you all cry? For sure, but the C64 showed it was equal to the task of running the best software its rival had to offer



All the Bs for arcade conversions, this set of three were some of the best reared on the limited, by comparison, hardware. *Buggy Boy, Bionic Commando*, and *Bubble Bobble*



UK (another pioneering moment from Jeff Minter), things became a little more bearable.

Even at the peak of its popularity, it's said that only around ten per cent of all C64 owners had a disk drive. Which by the powers of deduction means 90 per cent were stuck with tape loading only. As mentioned earlier, this was mainly down to Commodore's high pricing policy in the UK. Hence to accommodate this fact, it is no surprise that a lot of games were designed for single load only, squeezing as much as possible into that 64K (or less). The benefit to those who had access to both formats is obvious, the C64 repeatedly delivered quality games in all genres and interests and wasn't confined to a subset of possibilities.

Those Commodore 64 owners out there are already no doubt counting on their fingers all the games they loved and separating them into single and multi load. Unless you had a disk drive fairly early on, it would be expected that the single loaders are going to win out here. Anyone who played *Turbo OutRun* on tape will know how excruciating it could be (having said that, before fast loaders appeared, loading from disk was almost as bad). Sometimes it was done right; having the next level load during sequences in *Dragon's Lair 2* or *Hawkeye* for example, or playing a small mini-game such as *Invaders* or *Painter*. It also gave rise to the 'loader tune' to occupy gamers as they patiently waited for their latest epic to dribble into memory. Music for the C64 would turn out to be probably the defining point of its lifespan.

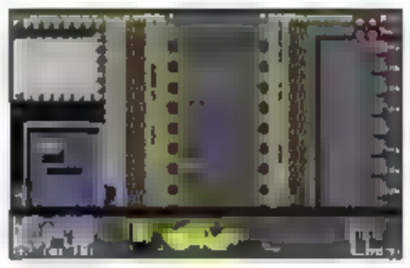
Aside from tapes and disks, the C64 could also use cartridges. Despite the number of games available being tiny compared to the overall catalogue (just some 300 odd releases), there were some great titles to be had, though many of them were only available on that format, and only available in the US. US Gold did some balancing by releasing some of the Sega titles in the UK, Atarisoft published a few of their own in Europe, and HES released games on tape, but the majority stayed behind.

Most of Commodore's own efforts can be ignored, although *International Soccer* is impossible to avoid, and *Wizard Of Wor* is one of the best conversions available for the C64. Other titles people should look to grab from abroad include *Gyruss* by Parker Bros, *Diamond Mine* by Roklan, *Moondust* by Creative, *Maze Master* by HES and *Jumpman Junior* by Epyx. Look to Australia and cartridge versions of classics including *Leaderboard* and *Ghostbusters* can be found, as Home Entertainment Suppliers had a licence to produce them in the late-Eighties.

"EVEN AT THE PEAK OF ITS POPULARITY, IT'S SAID THAT ONLY AROUND TEN PER CENT OF ALL C64 OWNERS HAD A DISK DRIVE"

Not all the important cartridges were games however. Anyone with a disk drive needed a utility cartridge to go with it, and examples such as Datel's Action Replay, the Final Cartridge, the Expert and Super Snapshot were all good sellers. They not only performed quick copying of disks, but enabled pokes to be entered, had built-in fast loaders, allowed easy use of disk commands and more. In today's disk heavy environment, they are an even more vital necessity.

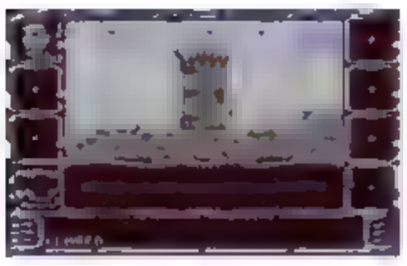
The other essential weapon was the review magazine. After the success of *Crash* for



Before *Micro Machines* came *Slicks*, a very similar game, and one of the best overhead racers available for the C64.

commodore 64

"SID IS UNIQUE. THERE WAS NOTHING LIKE IT BEFORE AND THERE HAS BEEN NOTHING LIKE IT SINCE. THERE'S A DISTINCTIVE FORM TO ITS SOUND"



Above RPG fans were well catered for, with releases from Interplay SSI, Origin and Electronic Arts, and more recently the massive 14-disk homebrew epic *Newcomer*

Spectrum owners, Newsfield launched *Zzap!64* in April 1985, and for the next three or so years, it was the best thing on the planet – if you were a C64 owner, that was. With the attack of pointy hair and pointed words from the twin terrors of Gary Penn and Julian Rignall gamers felt safe that if they said something was good, then it was going to be good.

The magazine lost its way after that point due to various changes, but was always a good read even if it had lost some of its magic. Coming late into the show was Commodore Format, which didn't launch until the end of 1990 when the C64GS was released. *Zzap!64* had never really had a proper rival until then, so late in the C64's life there was suddenly some real competitive spirit. Format lasted until 1995, which was some going for a magazine with an 8-bit theme.

Despite the effort of magazines to keep gamers on the straight and narrow, some people still bought duff software. But there was method to the madness, it was all to do with the music. It may seem strange, but some games (*Comic Bakery, Miami Vice, Rambo* and *Knucklebusters*) despite being less than great, still sold rather well due to exceptional SID tracks. Music more than anything else elevated the C64 above its contemporaries and made playing games more than just bleeps and bloops. Where else has one chip inspired countless remixes, paid-for music albums, samples in commercial records, organised concerts and a professional mixing/composing station?

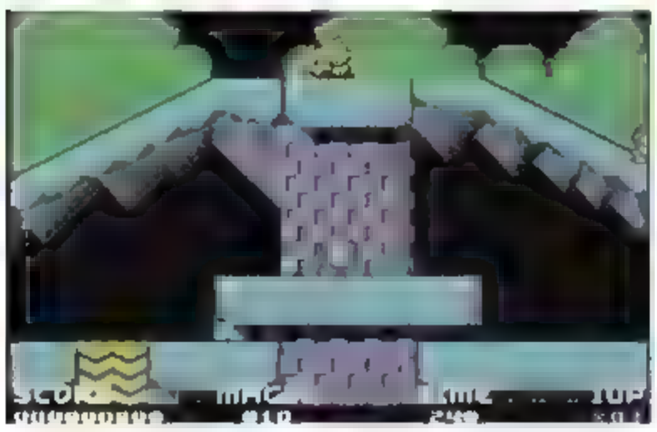
SID is unique. There was nothing like it before and there has been nothing like it since. There is a distinctive form to its sound, and those musicians capable of extracting the most from it were almost heralded as gods at the time. Be it the frantic fast paced nature of *Monty On The Run* (Rob Hubbard), the psychedelic trippy *Parallax* (Martin Galway), the oriental themes of the *Last Ninja* (Ben Daglish and Anthony Lees), the industrial drum-based rhythms from Matt Gray or Steve Rowlands' bouncy house-like tracks, there was something for all. Melody was key; many classic SID tracks are instantly hummable and maddeningly catchy.

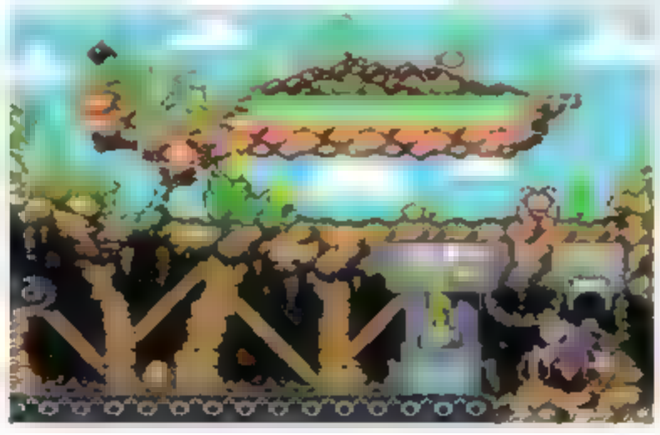
Samples, in the form of instruments or voices, as part of the music became popular after Martin Galway and Chris Hülsbeck started using them in compositions in 1987. When utilised homogeneously, in such pieces as *Savage* and *Turbo OutRun* by the Maniacs of Noise or *Combat School* by Galway, they really added something to the end production. Unfortunately Commodore fixed the bug in the 6581 SID chip that allowed samples to be played for the 8580 revision meaning they became very quiet. Fortunately there is a solution available to fix this "problem".

With the graphics, music and games making the C64 a global success, it may not be surprising that all of Commodore's 8-bit hardware that followed never came anywhere close. You could say that was partly due to its popularity – people saw no need to change, apart from going onwards to the Amiga or Atari ST. For example, the C16 and Plus 4 were nice machines but only ever occupied a niche market space that disappeared once the price of the C64 came down.

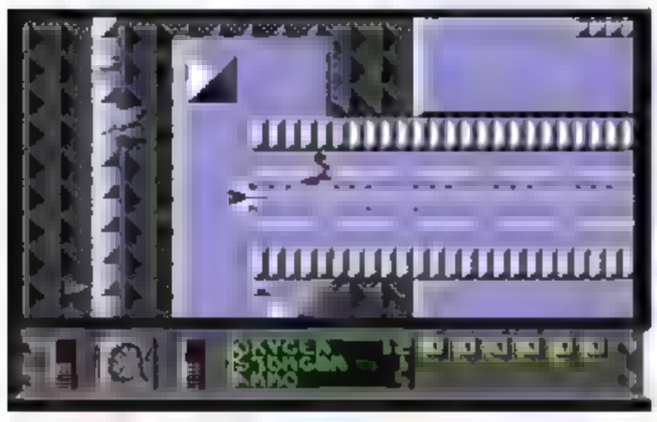
Whereas on paper the C128 looked like an interesting prospect, the idea of a better equipped Commodore 64 with twice the memory and processor speed could have been seized upon by developers but never was. Very little C128-only software was written as users voted with their wallets and stuck with the C64 instead. Early on in the C64's life, Commodore marketed the SX64 an alleged portable version (or not, if you've ever tried carrying one about) of the hardware with a built-in monitor and disk drive. However with an initial price tag in the US of just under $1,000 (and a similar value here), it was never destined to sell in large amounts. Having said that, it isn't difficult to find them being sold privately today in the US or Germany.

Commodore's biggest error was trying to compete for the space occupied by Sega and Nintendo in the console market. It is similar to the mistake committed by Amstrad with the GX4000. The idea of attracting those users across was sound, but in true Commodore fashion, it got the execution horribly wrong. The main problem was the price of the new C64GS (Games System) unit: at £100 it was only just less than a normal C64 bundle. The joystick included with the console was horrible, and with the lack of keyboard, many of the older cartridges could not be played properly.





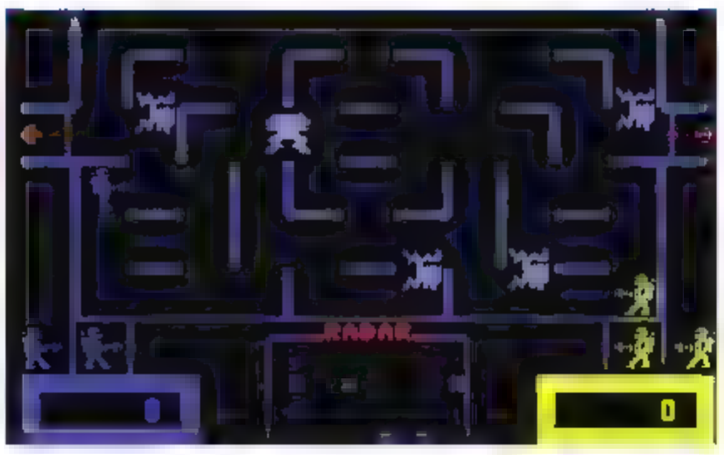
The C64 was still home to new development talent into the Nineties as witnessed by the Rowlands brothers' games, which always had the highest production values possible



Sensible Software was known for producing unsensible games including the two that kick-started its success *Parallax* and *Wizball*

Jeff Minter was behind the C64 after progressing from the Vic 20, and all of his games for the machine have a unique quirkiness about them.

Indescribably brilliant, and a concept seldom used since. Control the influence device to destroy or takeover all of the rogue droids aboard eight ships



Just about every C64 owner will have played *International Soccer* at some point, but there were other great cartridges to get including the conversion of *Wizard Of Wor* and Ocean s range for the 64GS

Just because it was budget did not mean it was bad. There were a number of undiscovered gems including *Spore* and *Warhawk*, plus the bestest value game ever *Thrust*

It did kick off the interest in cartridge-based games again, albeit brief y, and there were some excel ent new titles available for a s ightly higher-than-expected price tag – the majority coming from Ocean There was also a lot of confus on at the time as many people thought the new cartridges would not work with a norma C64. As a remedy, many games had stickers positioned prom nently on the front, pointing out they could be used with any machine. In the end roughly a third of the 100,000 units manufactured were sold, with the rest being broken down for use n C64C models instead

The C64 had already gotten an update n its own right n 1987 with the introduction of a new slim-line design to match the Amiga, and a slight name change to the C64C. The internals of the machine were redes gned and decreased chip wise along with the aforementioned SID rev sion, although some early C64C models do have the 6581 inside. It was still business as usual for sa es, and the C64 kept selling and kept being popular despite the release of vastly more powerful hardware and conso es experiencing a resurgence It was also a reason why the C65 project was cancelled

Where the C64GS had failed in attracting the next generation, the ordinary C64 succeeded. With the turn of the decade, interest in the ageing technology would be expected to decrease, and yet a new wave of younger users was just taking their first steps. On their hee s was a new set of programming talent looking to keep the machine alive, and maybe show a few tricks that established teams would ut lise themselves. If games such as *Turrican*, *Turbocharge*, *Mayhem In Monsterland*, *Battle Command* and *Elvira 2* had been released earlier in the machine's lifespan, who knows where deve opment could have led. What is certain is that constant innovation and expenmentation w th the hardware made it do things the designers never conceived as being possible

In 1993 Commodore announced it was finally halting production of new C64 units. 11 years is a long time in today's terms for manufacturing essentially the same piece of hardware It even managed to outlive Commodore's own demise the following year, as commercial software was still ava lable to buy into 1995. From then on, it was the era of homebrew and fans supporting the machine

Homebrew is merely a technical term for it, as unlike the Atari 2600 or NES, ordinary users were programming their own games and selling them (and many did) since the launch of the Commodore 64. Without the support of retail shops, it meant distribution went back to being word-of-mouth, mail order and private advertisements In the last ten years, thanks must go to Russ Michaels (Electric Boys Software) and Jon Wells for pioneering the process and today there are several groups releasing 'for money' software including Protovision and Cronosoft, along with many others doing it for free

"CONSTANT INNOVATION AND EXPERIMENTATION WITH THE HARDWARE MADE IT DO THINGS THE DESIGNERS NEVER CONCEIVED AS BEING POSSIBLE"

One thing is also certain a disk drive is an essential part of owning a C64 today and is now highly affordable. With the efforts of groups uch as Gamebase64 and individuals such as Peter Rittwage to document and preserve all games ever released, and cables available from various outlets, programs can be transferred from PC to rea floppies easily to play on a proper C64 Many new game releases are disk only Like many other 8-bit machines, the future is still active and bright for hardware that is rapidly approaching its thirties

I Want My DTV

The origins of the DTV (D rect To-TV) unit lie with the C-One project, created and designed by Jer Ellsworth Conceived as a way to emulate the C64 as closely as possible through software it eventually progressed into a platform capable of handling many other formats due to the unique nature of its powerful design

Although the C-One was aimed at a developers market, it did not go unnoticed Mammoth Toys signed a deal with Ellsworth to produce a computer-on-a chip version for use in a self-contained games joystick, similar to many already sold by companies such as Jakk's Pacif c With the project completed in a few months it went on sale just before Christmas 2004 and sold more than 250 thousand units

The later PAL version has several improvements and a more refined games line-up, making it the preferential choice of purchase Not only are there several Easter eggs to find, the unit is also fairly easy to hack and alter due to its C-One origins, meaning among other things new software can be loaded into the unit and extra joystick ports added for two-player games The C64 lives on though maybe not qu te in the format people expected

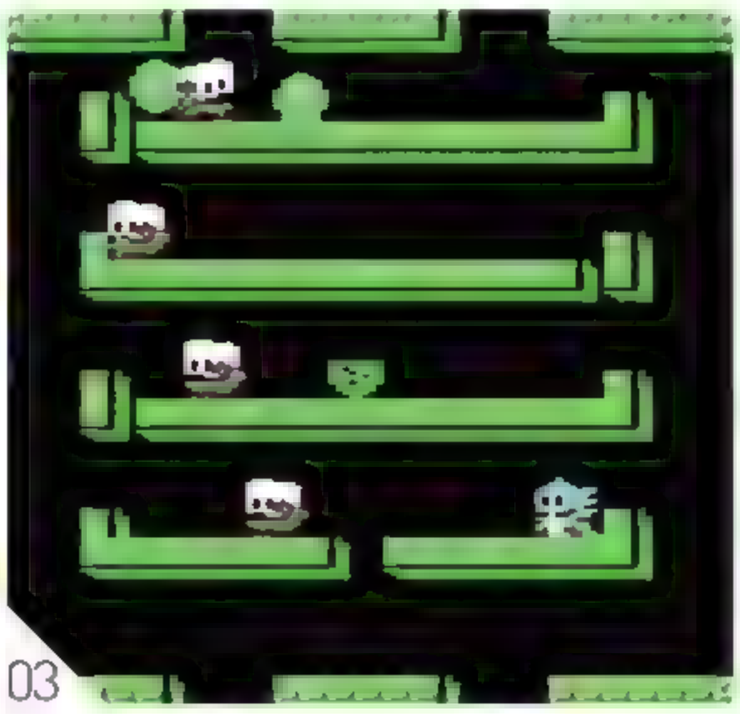
commodore 64

PERFECT TEN GAMES

Commodore 64 has a staggering selection of fantastic games. Oh decisions, decisions. What to go for? Well, we hope you'll agree that this little clutch of C64 titles are pretty sublime

01

02



03

04

THE SENTINEL

- **RELEASED:** 9[illegible]
- **PUBLISHED BY:** F REB RD
- **CREATED BY:** GEOFF CRAMM ND
- **BY THE SAME DEVELOPER:** STUNT CAR RACER

01 Geoff Crammond's name may be synonymous with racing games, but when he wasn't pouring his heart and soul into his latest *Grand Prix* title, he was adept at turning his hand to all sorts of different genres, with *The Sentinel* being a perfect example of his handiwork. Haunting and with a meticulously designed game engine that gives a tremendous sense of scale and depth, Crammond's *Sentinel* was one of the best strategy games on the C64 – although to be fair, it initially appeared on the BBC Micro – and even today offers a worryingly addictive challenge. Best of all, emulation means you no longer have to endure those lengthy screen loads. Lovely!

IK+

- **RELEASED:** 1[illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** ARCHER MACLEAN
- **BY THE SAME DEVELOPER:** MER[illegible]RY

02 There had been previous games involving the slamming of bodily appendages against each other, in a sweaty contest of stamina and skill, but it was Archer Maclean's *IK+* which was first to ménage à trois with the concept – metaphorically speaking. It revolutionised the mechanics of games like *Way Of The Exploding Fist* and *Karate Champ*, and also incredibly well on the humble C64. Music was by Rob Hubbard and while there was only one background it was filled with many clever Easter eggs (those joyous bonuses you could spend months discovering). The fluidity of control made it easy to initially play, but this was backed up by a complex system which rewarded continued practice. A classic.

BUBBLE BOBBLE

- **RELEASED:** [illegible]8
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]FTWARE CREATIONS
- **BY THE SAME DEVELOPER:** [illegible]SYSTEM SECRET AGENT

03 There have been plenty of classic coin-op conversions on Commodore's mighty 8-bit, but *Bubble Bobble* ranks as one of the best. From its cute vibrant – if slightly squashed looking – visuals to the outstanding, bouncy music, the C64 perfectly captured the spirit of the original arcade hit and proved to be the perfect game to show off to your Spectrum and Amstrad-owning mates. It might not feature all the secrets that appeared in the original arcade game and having to press up on the joystick in order to jump is no substitute for a proper fire button, but if you're looking for an extremely competent conversion of a classic arcade hit look no further. A superb conversion that shouldn't be missed.

MAYHEM IN MONSTER LAND

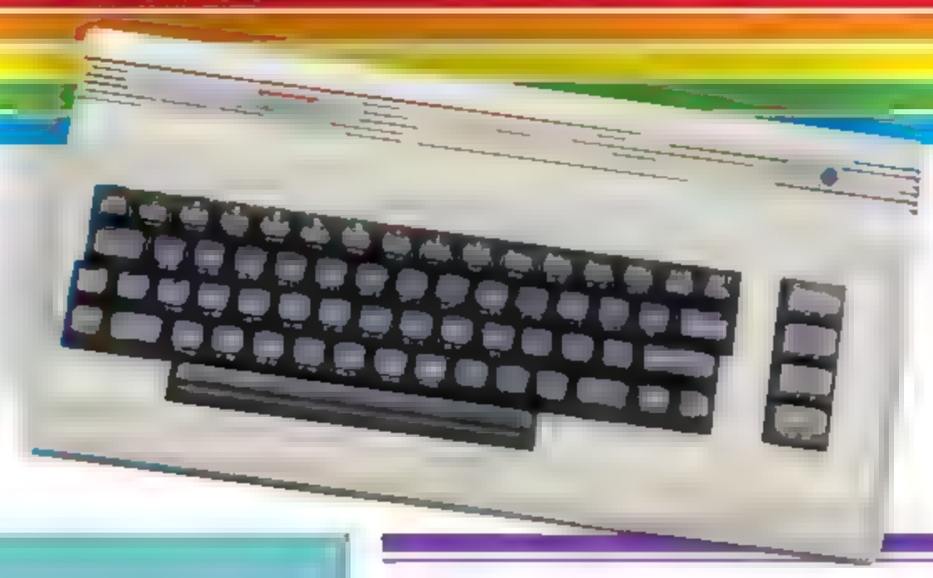
- **RELEASED:** 1[illegible]
- **PUBLISHED BY:** APEX COMPUTER PR[illegible]TIONS
- **CREATED BY:** CREAT[illegible]
- **BY THE SAME DEVELOPER:** CR[illegible]TIONS

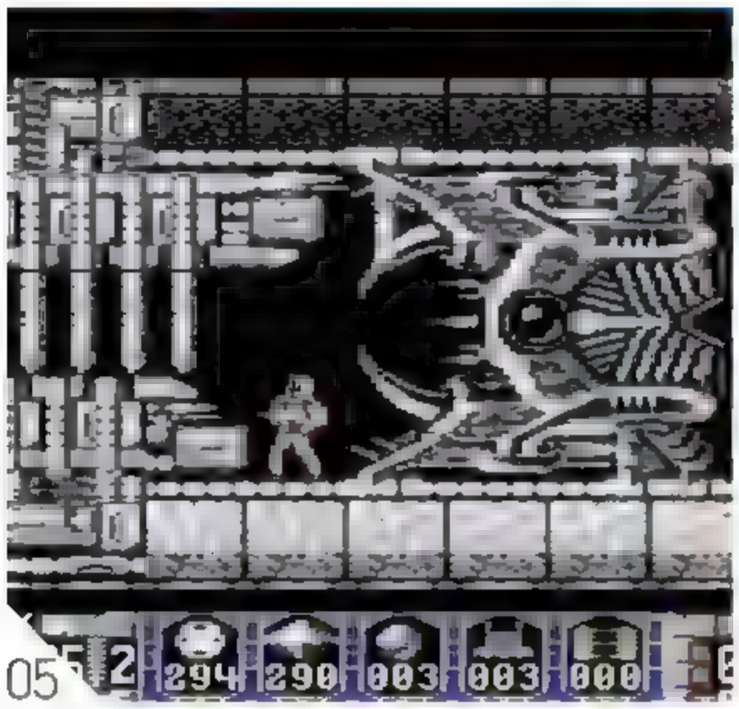
04 There was no question of this not making the Perfect Ten, what with it being regarded by many as the C64's last great release both in terms of gameplay and sheer technical achievement. As most already know, it infamously used a 'bug' in the graphics chip, which allowed entire screen scrolling and therefore much smoother and faster gameplay. Despite being a C64 title it has all the speed and tactile control you'd expect from an early-Nineties platformer, which not only guarantees it a place here but also means it's still great to play even today. Being a dinosaur and returning colour to the land has never been such fun.

TURRICAN

- **RELEASED:** 199[illegible]
- **PUBLISHED BY:** RAINBOW ARTS
- **CREATED BY:** MANFRED TRENZ
- **BY THE SAME DEVELOPER:** THE GREAT GIANA SISTERS

05 There's an unwritten law in videogames that states: all C64 lists must feature at least one Manfred Trenz game. While many will no doubt argue that Trenz's *Turrican II* is clearly the better game, we've decided to stick with the original, mainly because there was nothing quite else like it when it first appeared in 1990. It may well have borrowed heavily from obscure coin-op *Psycho-Nics-Oscar*, but Trenz's technical wizardry of Commodore's machine simply blew us away and it still manages to impress today. Part platformer, part shooter *Turrican* features incredible visuals, a stunning score by music maestro Chris Huelsbeck and some of the most frenetic gameplay around. It fully deserves every accolade that has been bestowed on it.





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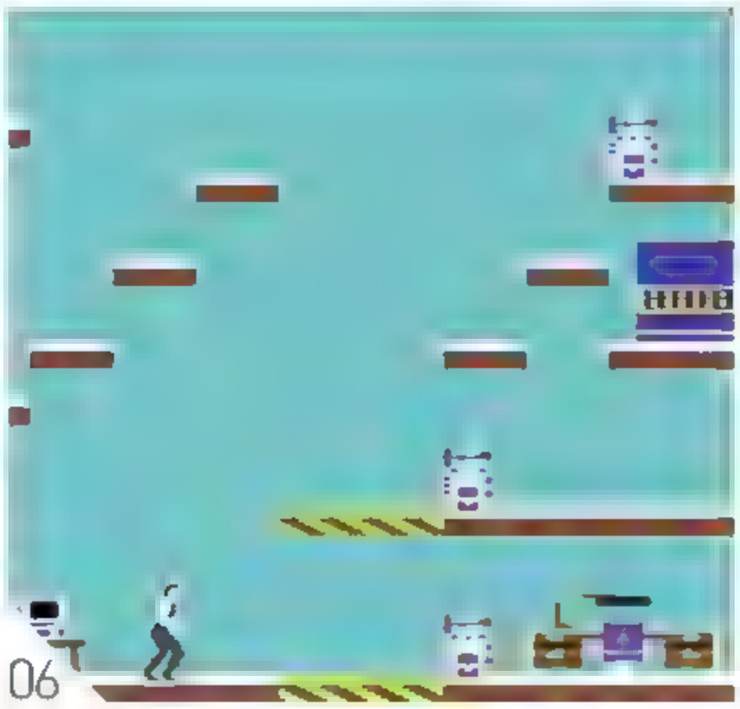
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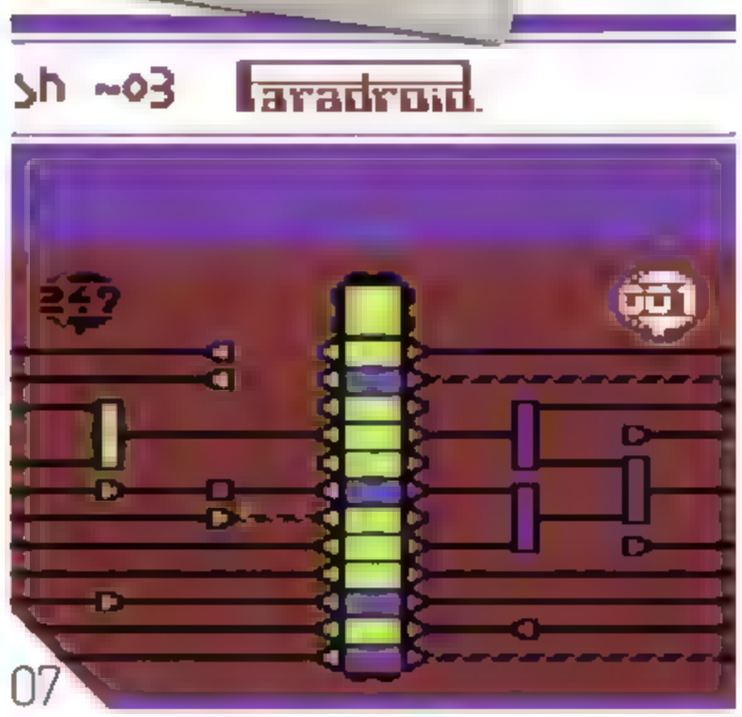

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IMPOSSIBLE MISSION

- **RELEASED:** 1984
- **PUBLISHED BY:** US Gold
- **CREATED BY:** Dennis Caswell
- **BY THE SAME DEVELOPER:** Phase 1 Patrol

06 We sincerely hope everyone reading this will take the time to experience this timeless classic from Dennis Caswell. *Impossible Mission* was a perfect blend of joystick waggling dexterity – especially when avoiding the terrifying spheres of floaty-electric-death – and also tricky puzzles (many had problems with the final password-piece assembly). Although its premise – of searching furniture to find those elusive passwords and avoiding robots – may sound nauseatingly simple, it made for a videogame that was easy to get into, but difficult to put down again. Although ported to several other systems, for us the Commodore 64 original is still the best version.

PARADROID

- **RELEASED:** 1985
- **PUBLISHED BY:** Hewson
- **CREATED BY:** Andrew Braybrook
- **BY THE SAME DEVELOPER:** Quedex

07 Ask any C64 owner to name their favourite games, and chances are that this superb effort from Andrew Braybrook will almost always make their top five. Taking control of a weak prototype droid, your aim is to simply clear each boarded spaceship (of which there are eight) of its out-of-control robots. While your droid is woefully underpowered (even Dusty Bin could have it in a scrap), it does retain the unique ability to transfer itself into any available droid, albeit for a limited amount of time. This enables it to take out the ship's more dangerous foes (via a charming mini-game) and adds an interesting play mechanic. With its subtle blend of strategy and blasting, *Paradroid* deserves to be in every C64 owner's collection.

WIZBALL

- **RELEASED:** 1987
- **PUBLISHED BY:** Ocean
- **CREATED BY:** Jon Dunn, Geoff Crammond
- **BY THE SAME DEVELOPER:** Paradax

08 Playing *Wizball* was a rites of passage for many Commodore 64 owners and became more than ample ammunition for those who wanted to taunt their CPC and ZX Spectrum owning peers. Insanely smooth scrolling, a scintillating soundtrack from the always dependable Martin Galway and its slick blending of genres means that *Wizball* will forever remain within the higher echelons of Commodore 64 classics. It might well have taken a while to get used to your ball's incessant bouncing but once you finally mastered it and collected a few power-ups *Wizball*'s true identity and depth are revealed. Quite possibly one of the most beautifully crafted C64 games that you'll ever have the privilege to play.

PROJECT FIRESTART

- **RELEASED:** 1989
- **PUBLISHED BY:** Domark
- **CREATED BY:** Eric Ahn
- **BY THE SAME DEVELOPER:** Incentive (The Graftgold)

09 Many games claim to have pioneered the survival-horror genre, but while others came before it, *Project Firestart* is one of the very best and is still supremely enjoyable today. Your task is to dock with a research vessel in space and find out why there's been no communication. From the start, when you see the body of a dead crewmember who has written the word 'danger' in their own blood, you know it's going to be an incredibly tense mission with plenty of twists and turns. Throughout the ship are mutilated bodies, log reports, even a survivor, then you encounter the terrifying invisible enemies, which randomly appear. Multiple endings guarantee regular returns to that hellish place.

ZAK MCKRACKEN AND THE ALIEN MINDBENDERS

- **RELEASED:** 1988
- **PUBLISHED BY:** Lucasfilm
- **CREATED BY:** Noah Falstein
- **BY THE SAME DEVELOPER:** Maniac Mansion

10 It's only fair to list one of LucasArts' excellent games. But we can already hear a great disturbance, as if millions of voices suddenly cried out in terror, due to our choice. Yes, we could have listed *Maniac Mansion*, but everyone knows *Maniac Mansion*. *Zak McKracken* is arguably just as good, and the journalistic setting struck a chord in the office. Traversing the entire globe, Zak encounters aliens disguised with Groucho Marx-style nose-glasses and cowboy hats. Throw into the mix wacky sidekicks, a bus that travels to mars, and some bitingly witty newspaper headlines, and you have one hell of a crazy adventure.

Year released: Japan June 1983, US November 1982, UK May 1983

Original price: Japan. 54800 Yen, US. $199 99, UK: £149 99

Buy it now for: £50-75

Associated magazines: None

Why the Vectrex was great... Vectors have never gone out of fashion. They were cool in the Eighties, and they are still cool today, as evidenced by games such as *Geometry Wars*. They have not aged with time like many other graphics, their sharp, pinpoint definition and almost hypnotic phosphor glow a lure, drawing you closer. The games behind them were pretty good also, with a level of quality today that just keeps going up and up. To not Vectrex is to be incomplete

VECTREX

UNTIL 1982 ALL HOME SYSTEMS HAD ONE THING IN COMMON: THEY OUTPUT A RASTER DISPLAY. THE VECTREX, IN ITS SLEEK BLACK EXTERIOR, WAS ABOUT TO CHANGE ALL THAT. MAT ALLEN TAKES A LOOK AT A CONSOLE THAT HAS ARGUABLY GAINED IN POPULARITY WITH TIME, AND IS NOW CONSIDERED AN ESSENTIAL PART OF ANY GAMING COLLECTION

The Vectrex, when you look at it in today's gaming environment, is a complete aberration: different to anything that came before it or has come after it. While there are a few other examples of the display/machine hybrid, it is the only one to stand out in its own right, and the only machine to offer a dedicated vector-based gaming experience. The fact that it also had one of the shortest lifespans of any machine makes it doubly interesting. If you thought the Dreamcast didn't have that long of a commercial life, then pity the poor Vectrex, which was dead within 18 months of launch. Yet today it has a cult following, and a homebrew scene second in size to that of the Atari 2600

The men primarily responsible for creating the Vectrex we love today were Jay Smith and Gerry Karr. Smith had a long and detailed technical background that started while working on the Apollo space program. "I was really a gadget maker, and not too long after that, I went to work at Mattel Toys," he states. "We got into making electronic toys, and from electronic toys to videogames, which were just coming onto the scene."

Smith was also head of two companies that are often labelled together as Smith Engineering/Western Technologies, which, for the further purposes of this article, are abbreviated to SE/WT. The real break for Smith came with the Microvision, which was picked up by Milton Bradley (MB) for distribution in 1979. It was while dealing with MB that Karr met Smith, Karr would later work on the Microvision before being hired for what would become the Vectrex project and be responsible for much of the technical design

"We really didn't have any idea at the time that this would become a classic. What we were trying to do was push the envelope, move it to the next level, do something unique, make your contribution that way, and provide another outlet," admits Smith Vector machines such as *Asteroids* and *Tempest* were popular in

Larger Vision

Not only was Jay Smith responsible for designing the first vector home console he also designed the world's first portable machine the Microvision Unlike modern incarnations such as the Game Boy and PSP, the Microvision was just a hollow shell with buttons and an LCD display The real grunt of each game was present on the changeable cartridges they didn't just contain the 2K of ROM holding the instructions, but also housed the actual processor

If you think this sounds like a strange way to do things, then you'd be right. The whole idea of the handheld was way before the technology existed to do it proper justice, especially considering the screen resolution was a mere 16x16 pixels By the time Milton Bradley canned the project two years later there had been 11 releases in the US and seven in Europe Today a good condition Microvision is hard to find, given that it often suffers from the ravages of time

"THE VECTREX, WHEN YOU LOOK AT IT IN TODAY'S GAMING ENVIRONMENT, IS A COMPLETE ABERRATION"

VECTREX
PERCHANCE
VECTREX
NARZOD

VECTREX

the arcades and Karr recalls. "Part of the initial design specification and push to sell was to produce a device capable of emulating *Asteroids*." Continuing the portable theme, the idea for a handheld device was formed and a prototype was built with a one-inch screen using a supply found by hardware designer John Ross, though in hindsight it was incredibly hard to achieve logistically, given the short distances involved with deflecting the dots from the plates inside the CRT.

Towards the end of 1980, so it is told, workers from SE/WT found a supply of five-inch monitors going cheap and it was decided that the new vector project was going to be based upon this display instead. "There were really only two iterations of design. The original concept was for a device called Mini Arcade. It was a five-inch screen, much smaller and less capable. We ended up licensing it to GCE in a different configuration but quite similar to what it looks now. As we were on a short schedule, and we had control over the design, there was constant evolution right up to production. At any one time, it was prototyped what was there, but conceptually it didn't vary a great deal," states Smith. By the end of the year the general design of the machine was a most complete and Smith began to look for potential investors.

'We optioned the product to Kenner, who were the ones to do the *Star Wars* products. Kenner thought about it, and thought and thought, and this all occurred in the winter of 1980, spring of 1981. Finally, in the summer of 1981, they decided no, it would not be popular, would never go. They gave it back to us in around July or August, and we went to a guy called Ed Krakauer, who was the key guy for Intellivision at Mattel and then left to form his own company called GCE, or General Consumer Electronics.'

Krakauer saw the potential for the machine immediately. "Ed was really quite a visionary, and he took a look at it and said, 'Great, that's wonderful, if it could have a bigger screen, I'd really be interested.'" Therefore, in place of the original five-inch screen, the final design encompassed a nine-inch screen instead.

The 'Mini Arcade' name was not exactly catchy in the eyes of the marketing people – and, apparently, the name of another already-existing product – and so a suitable replacement was sought. After a brainstorming session, programmer Tom Sloper came up with the name 'Vector-X', which was eventually contracted to the name we know today.

"And so by September or October we were in fully swing with a plan to do a games system and 12 games, and have them all ready to show by June 1982, which was about nine or ten months away. So in the ensuing ten months we developed the entire games system, the operating system for the game, 12 games that were showable at CES, and that was the birth of Vectrex."

In that time, a number of design points were nailed down, such as the screen orientation, the control system and the overlays. "The Vectrex has a vertically orientated screen instead of horizontal. This was so it didn't look like a TV. By orientating it vertically, it gave it a different look, and it had its own value as a game."

> "THE VECTREX HAS A VERTICALLY ORIENTATED SCREEN INSTEAD OF HORIZONTAL. WHY? THE REAL ANSWER WAS SO IT DIDN'T LOOK LIKE A TV SET" JAY SMITH

Smith continues to remember the choices made over the joystick. "How did we decide it was an analogue joystick or a digital joystick, and why was it on the left instead of the right? The placement of the joystick wound up being from a discussion that if you were flying an F-14 or whatever the fighter was at the time, the pilot's hand is on a flight stick in his left, and the throttle in his right. So he does all the flying control with his left hand."

Probably the best of the three dimensional games, this one showed off the true nature of the headset

Gateway to a new dimension of games playing. Or so they claimed.

The 3D Imager. It promised so much and was never able to deliver on it.

• *Armor Attack*. Like many Vectrex games, this could be played as two-player co-op. Take on the might of tanks and helicopters with just a jeep. Nothing like making it easy.

Bedlam: Easiest way to describe it would a reversed *Tempest*, where your ship is in the middle and the enemies attack from the outside

» How are you going to sell the console when it appears the player is more interesting to watch than the game?

Using cute manga girls to sell product in Japan is an age-old tradition.

Berzerk: A very competent conversion of the Stern arcade, apart from slowdown with lots of robots

Blitz: Go on you Os! You can beat the Xs now!

The size of the joystick unit was based purely on the fact that the unit was as wide as it was, and it needed something that size to fit the slot at the bottom. This is also why there were four buttons to use, and was also the reason why analogue control was present there was the space and it needed to be filled. Almost all consoles since the Vectrex have had the pad/stick on the left, and in terms of further pioneering, the Vectrex was also the first console to have a dedicated analogue control as standard.

It wasn't all easy going, Smith recalls. "Another big problem along the way was that it was a TV set, and had a lot of digital circuitry in it. The screen with all these electrons running around didn't go well with the digital circuitry at all. There was a lot of moving around, shielding, but we got through it."

In the midst of the hardware finalisation, there needed to be some games to play on it. Paul Alan Newell, Mark Indictor and John Hall were pulled off an Atari 2600 reverse engineer project and assigned to writing games or develop the internals for the launch of the Vectrex instead. Joining them were placement apprentices Bill Hawkins and Chris King, who were students at Georgia Tech, and Duncan Muirhead, who had just dropped out of a course at UCLA. All six were assigned to write the first batch of games penciled in – *Minestorm, Scramble, Armor Attack, Star Trek, Berzerk* and *Rip Off* – and that was later expanded to 12 by the time the console was to be shown at the Chicago CES in June 1982.

Many of the early titles came from Cinematronics, with WT/SE striking a licensing agreement that allowed full access to each other's games. The source code of many of the arcade machines was fully available to the Vectrex programmers, and Cinematronics had the option to release any of the original Vectrex games it liked as full arcade versions, which it eventually did with *Cosmic Chasm*.

Included with each game was the final component; a hard plastic overlay to attach to the front of the unit. The marketing department decided that the black and white display would not be as appealing to the general consumer, and it needed an injection of colour. Newell especially was never happy about them, and there was always a rift between some of the programmers and those advertising the machine regarding the policy. Hawkins once joked that they had thought about coding messages into each game stating, "for improved gameplay, remove the overlays"!

Smith comments about having a game included with the console: "At that time most Atari cartridges were done in 4k, with some adventurous cartridges getting up to 8k. The system ROM that ran the machine was put in 4k and the original game that was included with the unit was put in the other half of an 8k ROM. So the included game required no cartridge. Everything was in one ROM within the unit." However, while Hall and Karr had worked together on the system ROM called the Executor, when Hall was assigned to write *Minestorm*, the eponymous *Asteroids* clone, Karr felt that the module needed rewriting from scratch.

After a successful showing in Chicago, the Vectrex was eventually released in November 1982 in the US for the reasonable price of $199. Following good reviews and press, it sold modestly well and looked to become another success for Smith. It was also around this time that another player was becoming interested in entering

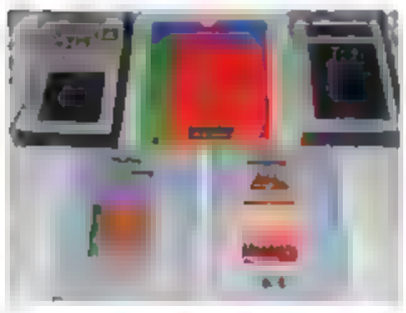
Boston Out

A special version of *Clear Sweep* that was co-produced with the Mr Boston Liquor Company. *Clear Sweep* itself was a *Pac-Man* variant where you controlled a vacuum cleaner sucking up all the money in the maze while pursued by the threatening pincers of doom, though the vacuum only had a certain capacity, meaning it had to be emptied every so often.

The new version replaced the vacuum cleaner with the company's symbol, a top hat, and the title screen featured an advert for Mr Boston liquor products. It was almost certainly never commercially available but was handed out as a promotional item. One copy known to exist is complete with the box and overlay, so the company went the whole hog in producing the full set of pieces. It is, however, the hardest produced cartridge to find, as only two others have been found, making this a prime candidate for some high bidding should another one turn up on eBay.

VECTREX

The delicious *Protector* and cunning *YAS!* games from Alex Herbert



A variety of other homebrew titles available for the Vectrex

A proof of concept program written by Paul Alan Newell and duplicated for sale at CGE 2003

Hyper Chase: A game very much in the ilk of *Turbo* and other such racers

"WHEN DID THEY STEP INTO THE FRAY? JUST ABOUT WHEN THE WHOLE BUSINESS TANKED!" MIKE CARTABIANO

the console market properly, as Smith recalls. "In late '82, GCE began negotiations with Milton Bradley, who bought the whole product line and put it out in force for 1983. They did TV advertising, they actually went up directly against Atari and Intellivision, when in retrospect they should have gone for a niche game or a specialty game; something that a kid could take to his bedroom."

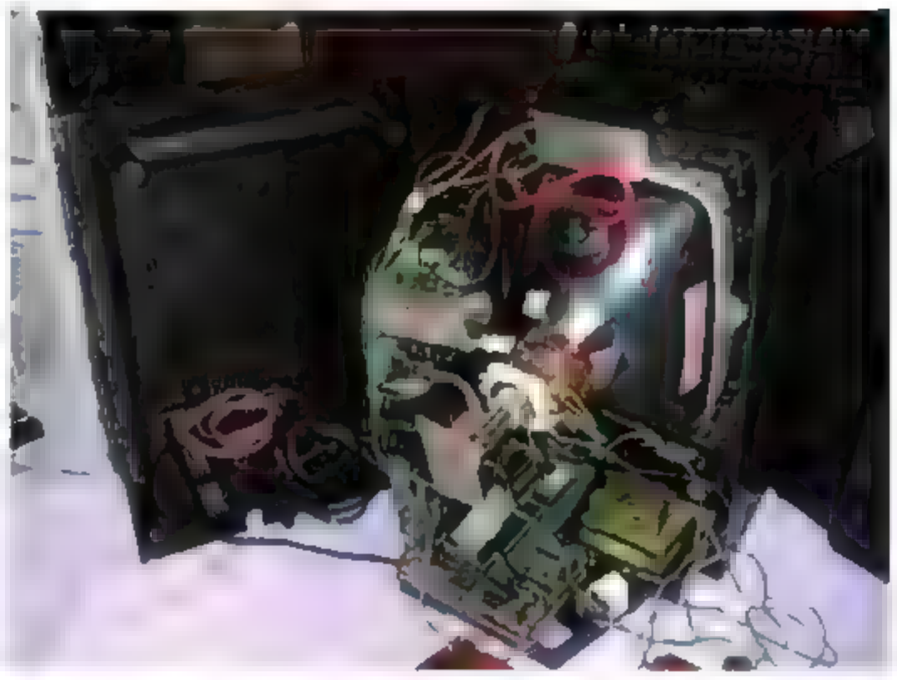
Now Mike Cartabiano comes into the picture, who would work on much of the product development and promotion for the console at Milton Bradley. He had met Smith during the Microvision period as he had just started at MB as a design manager. His thoughts about that time are quite dry humoured and blunt: "Coleco were right down the road from Milton Bradley, so they had to step right into the fray. When did they step into the fray? Just about when the whole business tanked! They had cash but not much brains."

But they had bought the Vectrex and the games, the packaging, and they also decided that this would be a great product for Europe, because at the time Atari, the Intellivision and Colecovision had made a big impact in Europe. MB had a large operation over there, with factories in Ireland and Germany. They shipped a load of Vectrexes over to Frankfurt, I think, did some testing and got a great reception over there. People went wild over it in Germany."

MB had the means to distribute and advertise the Vectrex properly worldwide, something up until that point GCE would never have been able to contemplate. Whatever can be said about MB's handling of the console in general, in hindsight without it this wonderful little machine would probably have been stuck in the US and not be as popular as it is today.

Cartabiano naturally has his own scathing critique on the internal promotion of the Vectrex. "So they said, 'Now we're going to play with the big boys,' but instead of doing it the right way, like get people who knew what the game business was about, who knew how to play games and how to sell games, they gave it to their toy salesmen, who had no interest in pushing this product. So they found themselves facing some sale challenges, [and] meanwhile the business in general was getting very competitive. There was a glut of product."

While the Vectrex was being rolled out in Europe, MB sold the rights to distribute the console in Japan to Bandai, which would label it as the Kousokusen over there. Although the 11 available games were sold at a reasonable price of 4,800 Yen each (around £25



The inner workings of the only colour version of the Vectrex

today) the machine never took off, which was an indicator back then of how Japanese attitudes to Western technology have not changed when viewing the similar performance of Microsoft's consoles today.

During 1983, a number of new products were developed, most that never made it to market and two that did. A colour Vectrex was designed, the process of which Smith recalls vividly: "It was a serious proposal to put it in a regular Vectrex case, and the TV tube had two layers of phosphor. The obvious thing to do is make it into a colour TV, but it was three times as expensive because instead of one gun providing a point you had to have three guns for RGB. You had the mask on the tube, the tube was more expensive, the electronics were more expensive; it was out of the question cost-wise. This was a Vectrex that had two layers of phosphor on the tube – a red layer and a green layer – and you ran the electron gun into the CRT at two different voltages: 18,000 and 25,000 volts."

However the best laid plans and all that. "Nice concept, worked well, except that going from 18,000 to 25,000 volts was too time consuming. And at 30,000 volts you burn a hole in the tube. If you look at the colour Vectrex [the sole prototype is always on display at CGE] you will see it has a nice little hole burnt in the phosphor!"

The Japanese version of the Vectrex sold by Bandai

A complete boxed set of Kousokusen games

Below: Point and move and draw and play. The hardware was quite accurate. **Right**: Admittedly adverts seemed so exciting back then.

A pay-per-play timed version of the Vectrex hardware that sprung up in bars and such on the East Coast

Aside from scrapping the idea for a colour version, Cartabiano recalls other concepts that fell by the wayside "Internally we oved this thing We came back with ways to blow this thing out, be competitive, and keep us in this business. So we started on several campaigns, one was to take the basic technology and start to expand it. Jay was working on colour technology and a couple of other things so we left that to him, and we looked at the peripherals and we started making some of the same mistakes the other guys were doing. So we had developed a full QWERTY keyboard and overlays for that, and a musical device that could play really bad music with speaker systems that could plug into it in really odd places. Then we had a voice recognition module .. We actually built a prototype for a baseball game on Vectrex, to call a pitch and a few other things, and played really badly."

The two peripherals that did make it to sale were the lightpen and 3D Imager The lightpen was a natural introduction given the technology available and the facilities of the Vectrex itself Contrary to popular belief, the pen itself is actually a receiver, with the screen being scanned invisibly to find where it is positioned. As the joystick ports have a voltage line, this provided the input needed to power the pen itself. Three titles were released to take advantage of the device and it was met with reasonable success

The 3D Imager is an interesting device, mainly because, as a piece of technology over 20 years old, it still works amazingly well and is still one of the best examples of 3D imaging, thanks to the efforts of designer John Ross Thankfully, to save having to use the old hardware and/or spend a lot of money acquiring it – originals sell for over £150 usually – a modern version has been developed in conjunction with new games taking advantage of what it can offer, namely depth of vision and colour It's just a pity that back then it launched dead, right at the start of 1984, and this is why the original

Pole Position Given the potential limitations of the hardware, not a bad conversion indeed.

Help! Spike! Eek! Molly!

Fortress Of Intunatong Death more like. .

is hard to find today *3D Minestorm* included with the unit and *Narrow Escape* especially are pretty good in their own right.

"By 1984, Vectrex succumbed to the entire problem that overcame the whole videogame industry at the time." Smith's conclusive statement really needs no more comment A few months into the year MB closed GCE and started to sell off the remainder of its stock at cut prices, with the unit down to $49 and games $10 each in the US by the summer All this was really in preparation for the takeover by Hasbro that occurred in May of that year Stock that wasn't sold was apparently landfilled in Springfield, Massachusetts, according to Cartabiano

Four years later, Smith had the idea to resurrect the console as a handheld, taking the concept to Milton Bradley. "The thought at the time behind that was Sinclair had put out a device they called the flatscreen pocket TV We hooked this up and made a Vectrex out of it [the tube] MB thought about it, finally decided it would have to sell for about $100-110, so decided no, it could never sell anything like that About a year and a half later, the Game Boy came out!"

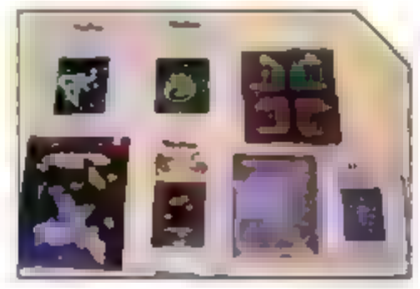
And with that, the Vectrex could have remained this curio console from the Eighties if it wasn't for the actions of two individuals The first was Smith himself, for upon MB liquidating stock and closing GCE, he obtained all the rights to the hardware and software back into his own companies and now makes them available in the public domain for non-profit use The other was John Dondzila, the first person to write a homebrew game for the Vectrex, as he recalls "Late 1995, following the various Vectrex Usenet threads, one of the most popular subjects was always someone who was going to develop their own Vectrex RAM cart and code games for the Vectrex I decided I wanted to be that someone and the rest is history." In his stead, others have since followed

Today, the Vectrex scene keeps getting stronger, with more people discovering what it has to offer and a dedicated group of individuals producing quality homebrew titles (see boxout) For a console that arrived late and died so early, it has risen like a phoenix to become one of those must have pieces of hardware

Homebrew Heaven

Given the Vectrex's small original library, it may come as no surprise that the homebrew scene is actually bigger by comparison Since John Dondzila's first steps over ten years ago, the scene has developed into a vibrant, thriving community that constantly seeks to push forward the boundaries of the technology and what can be done with it In return it has resulted in a dedicated voice synthesiser add-on, a replacement 3D Imager flash memory cartridge and onboard battery saving

But all this is nothing without the games Such masterpieces as *Protector* by Alex Herbert, *I Cyborg* by George Pelonis, *Gravitrex* by John D, *Spike's Circus* by Alex Nicholson and *Nebula Commander* by Craig Akers are proof positive that today's developments are just as good, if not better, than those during the Eighties Thankfully most homebrew is still available to buy today so go search the web and support these guys in their efforts



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The rarest and most valuable original release game available. Not bad to play either.

PERFECT TEN GAMES

The Vectrex only had 28 programs officially released for it, but over the years there have been some amazing homebrew titles coming out. Here's a selection of both

01

SPACE WARS

- **RELEASED:** 198[illegible]
- **PUBLISHED BY:** [illegible]E
- **CREATED BY:** [illegible]E
- **BY THE SAME DEVELOPER:** MI[illegible]

01 Everyone knew *Space Wars* would make the top ten list, since it's not only a great adaptation of a timeless classic but also the purest distillation of the multiplayer gaming ethic. Even today it's great fun and while an obvious choice is a title every Vectrex owner should get. Gameplay is elegantly simple: it's you and a rival ship, turn left or right, fire, accelerate and warp, two ships enter, one ship leaves. Terrific in one-player thanks to some decent AI, it's unstoppable with a friend. It's a title with many clever touches like bits of ships getting shot off and becoming debris, or the central star's gravity affecting your speed. Brilliant.

PROTECTOR

- **RELEASED:** [illegible]3
- **PUBLISHED BY:** N/A
- **CREATED BY:** ALEX HERBERT
- **BY THE SAME DEVELOPER:** YA[illegible]

02 The best Vectrex game of all time? The most important Vectrex game of all time? One thing is for sure: this superb *Defender* clone grabbed the community by the proverbial balls when first previewed and led many to believe it couldn't possibly be done on the hardware. How wrong they were. Alex Herbert's seminal tribute to Jarvis' classic is just one example of the untapped potential the machine held and the control scheme was a perfect fit to the Vectrex design. Thankfully now available in unlimited format, the original limited release with custom box and overlay – of which there were only a hundred copies – has become one of the most expensive homebrews to acquire.

02

ARMOR ATTACK

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]N MO[illegible]E A[illegible]
- **BY THE SAME DEVELOPER:** [illegible] WARS

03 A rocket-firing jeep, enemy tanks, and a terrifying helicopter, which isn't bound by buildings on the ground, are all trapped among the rubble of a ruined maze-like war zone. It may not sound like much, but this is a tense little action title backed up by some excellent AI. Shots can't travel through walls, so it becomes a game of cat and mouse as you attempt to outmanoeuvre the enemy tanks attempting to flank you. When hit, though, tanks aren't always damaged – they can sometimes still move their turrets and return fire. Like the best videogames it affects the imagination, conjuring up images from countless war films.

SPACE FRENZY

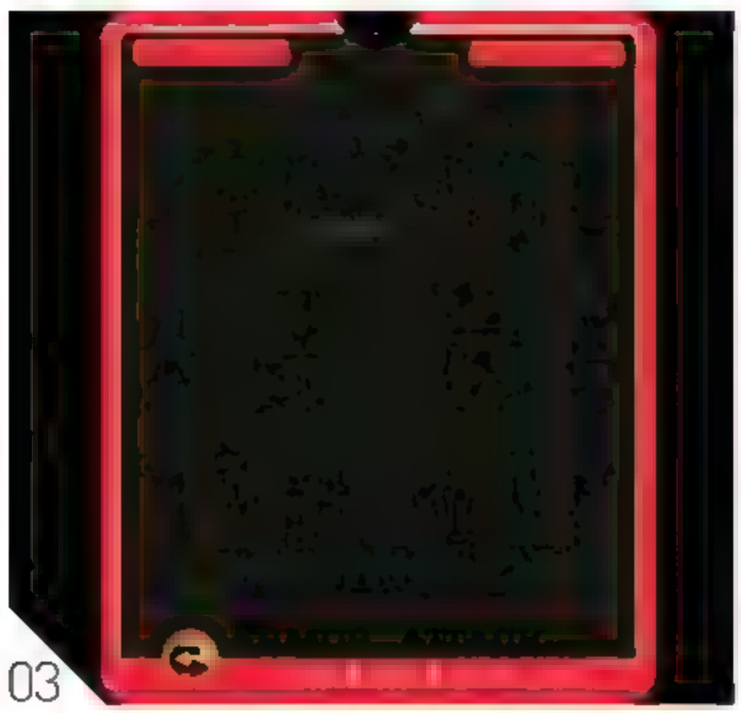
- **RELEASED:** [illegible]A
- **PUBLISHED BY:** N/A
- **CREATED BY:** JOHN DON[illegible]A
- **BY THE SAME DEVELOPER:** PATR[illegible]MANIA GRAVITRIX

04 With the Vectrex living such a short time and the wealth of vector arcade machines during that era, there are still opportunities to bring them across to the home format. John Dondzila's most current release is a homage to *Space Fury*, an obscure Sega/Gremlin title that took a lead from *Gorf* and gave you a taunting alien adversary. *Space Frenzy* as a game is almost identical to the arcade parent bar the colour and plays fast and hard in the traditional 'shoot everything on screen' genre, though also giving the player the opportunity to improve their shot power by docking with upgrades.

DARK TOWER

- **RELEASED:** N/A
- **PUBLISHED BY:** N/A
- **CREATED BY:** JOHN HALL
- **BY THE SAME DEVELOPER:** MINESTORM1

05 Technically not an official release since it never came out, though a prototype was later found, dumped, and is now available on most multicarts. Regardless, it's one of the best games on the system and, interestingly, is actually based on a 1981 board game by Milton Bradley. *Dark Tower* could be regarded as the system's first and only adventure RPG. The game has you wandering 3D fields of trees opening treasure chests, avoiding tornadoes, and battling wicked mages. There might not be any saving, but it's a thrilling adventure and is still quite exciting now.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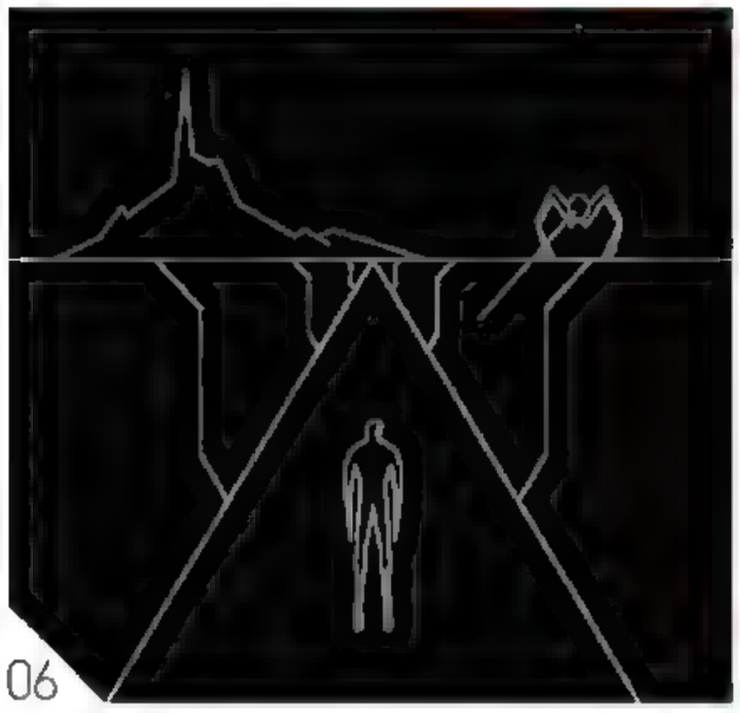


06

I, CYBORG

- **RELEASED:** 2004
- **PUBLISHED BY:** N/A
- **CREATED BY:** GEORGE PELONIS
- **BY THE SAME DEVELOPER:** WARP [illegible]

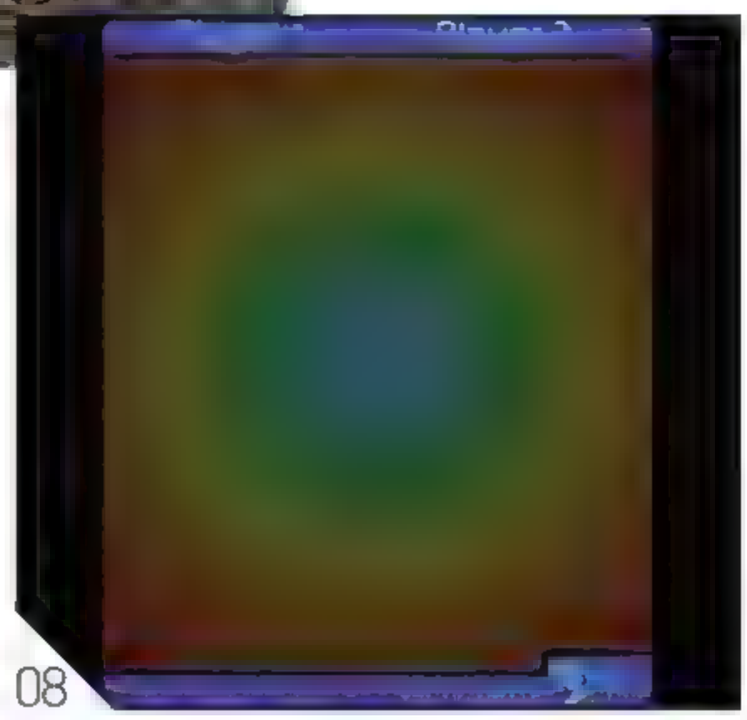
06 One thing can be said about George Pelonis' output on the Vectrex, and that is it's not your average run-of-the-mill game idea. Everything he has done so far is just a little bit different, not something that has really been attempted in the past. *I, Cyborg*, while a name homage to a more well-known publication, is a highly challenging escape running game where you control the titular character in its attempt to break free of the prison he is locked inside. Unlike many other titles, this game fully uses the 32k memory space allocated and will keep most players occupied for a long time trying to complete it.

07

COSMIC CHASM

- **RELEASED:** 1982
- **PUBLISHED BY:** GCE
- **CREATED BY:** BILL HAWKINS
- **BY THE SAME DEVELOPER:** [illegible]

07 *Cosmic Chasm* captivates our minds because, considering it's a game from 1982, there is surprising depth to it – like trousers that appear normal, but have infinitely long legs. The basic premise is that you're trapped underground, in a massive maze-like cavern, but have a map charting your progress, and each cave has both enemies that try to kill you, and also a massive expanding central core. Luckily you have a shield, lasers, and a drill with which to break down walls blocking your progress. The goal is to reach the core, blow it up, and then make your way back out of the caves before a chain reaction blows everything up.



08

STAR SLING

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

08 Ever play *Quantum*? Most of you probably haven't, given that it's an obscure, low-production-run Atari coin-op. Alex Nicholson hadn't heard of it and yet managed to produce what would prove to be a natural evolution of the concept and a challenging game to boot. Floating in space, your little ship is equipped with a tractor beam and lasso-type weapon, the object being to ensnare on-screen like-shaped entities to destroy them. At the same time, you avoid colliding with the shapes by using the tractor beam to match their velocity to pull you along. It's hard to explain, but it becomes easy to understand when playing. And very hard then to stop playing.

09

SPIKE

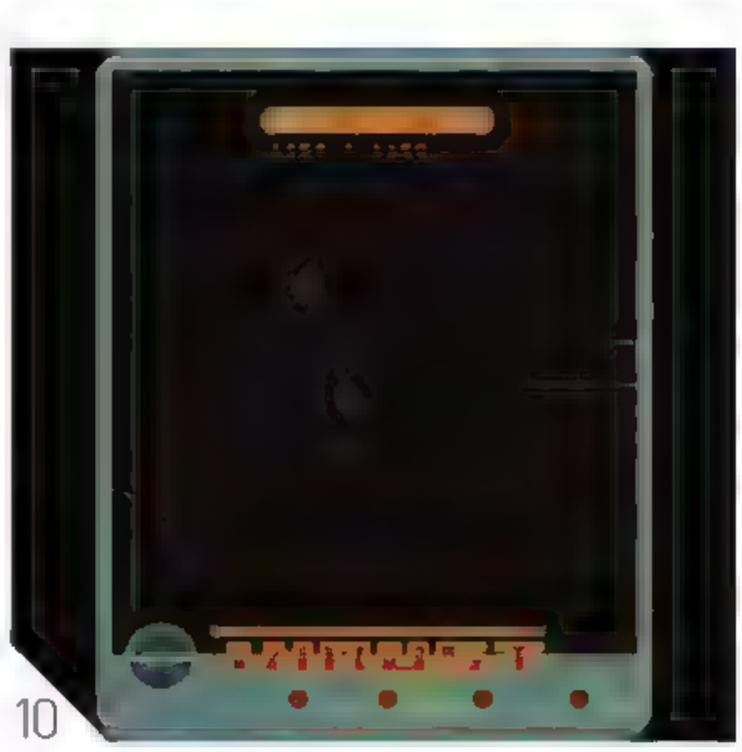
- **RELEASED:** 1983
- **PUBLISHED BY:** GCE
- **CREATED BY:** GCE
- **BY THE SAME DEVELOPER:** N/A

09 *Spike* is an important game for many reasons. It's a platformer featuring a hedgehog, but one that isn't *Sonic*. It's also technically the only platformer on the Vectrex system. Then there's the fact that it has some awesome and unforgettable digitised speech – we chuckle every single time we hear "OH NO!" All this has led to Spike becoming something of an unofficial Vectrex mascot – and rightly so, since the game itself is awesome fun. It's essentially a clone of the arcade classic *Donkey Kong*, except slightly different. You need to use warping ladders to reach and collect a key before climbing to the summit. You can also kick flying TVs, which try to kill you. It's crazy!

THRUST

- **RELEASED:** 2004
- **PUBLISHED BY:** MARK HARPER
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** N/A

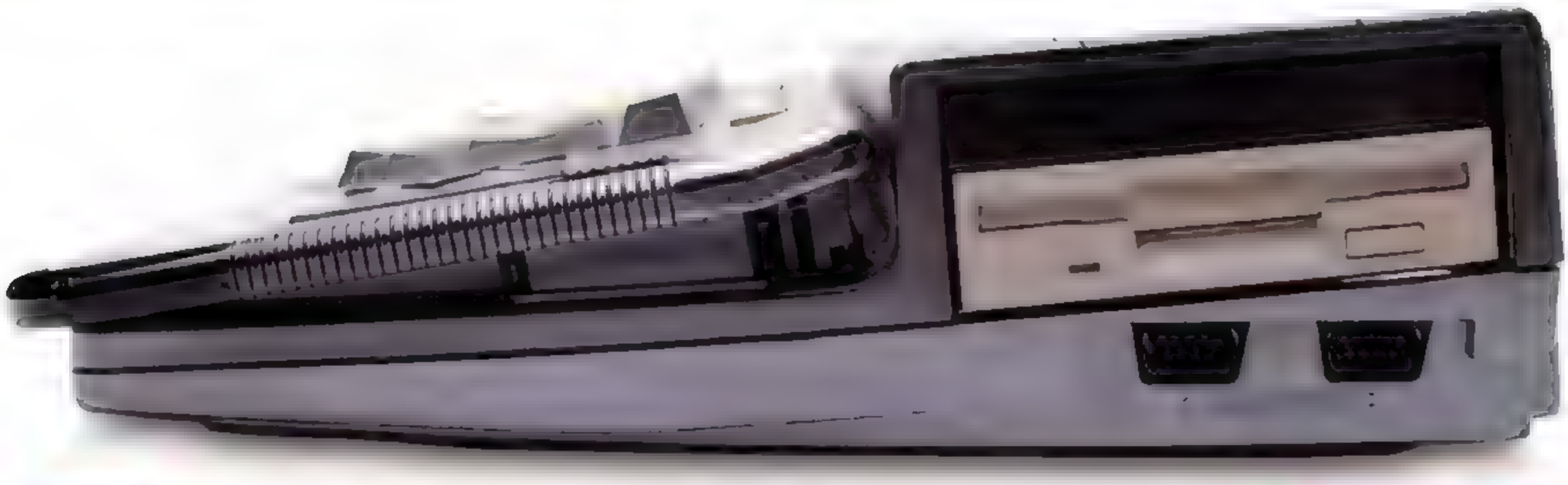
10 After doing the rounds in the Eighties and being resurrected for the Atari 2600, this vector-based classic finally made the transition to its most natural home only as recently as 2004. Taking inspiration from the C64 version, complete with translated Rob Hubbard soundtrack, it not only perfectly recreates the original but goes beyond the design with an additional rock hard difficulty level and time attack mode that will test even the most hardened *Thrust* players. Words are inadequate to be able to praise this game highly enough, with just the right balance between learned progression and challenging frustration evident with every turn. *Thrust* and shot – in fact the ultimate tribute to Jeremy Smith's genius.



10

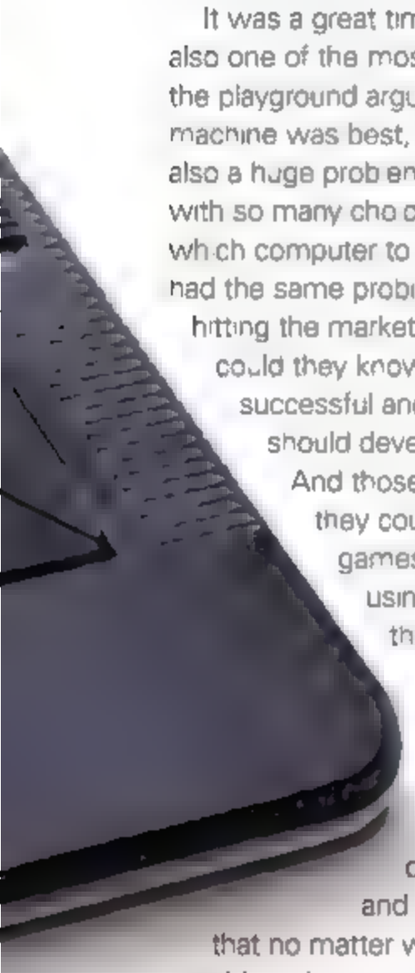
MSX

THE JAPANESE MSX COMPUTER STARTED LIFE AS THE WORLD'S FIRST STANDARDISED COMPUTING HARDWARE BUT ENDED UP BEING NOTHING MORE THAN AN HISTORICAL FOOTNOTE. IT DID HAVE SOME BLOODY GOOD GAMES, THOUGH, AS ASHLEY DAY REMEMBERS...



One of the greatest things about the 8-bit micro age was the sheer variety of machines and games available. The boom in popularity of home computing led almost every electronics firm of the day to manufacture their own games machines, and the UK was flooded with all manner of wonderful hardware and games to play on them.

It was a great time to be a games fan but also one of the most turbulent. There were the playground arguments about whose machine was best, of course, but there was also a huge problem for parents who, faced with so many choices, often didn't know which computer to buy. Game developers had the same problem: with new machines hitting the market every month, how could they know which would become successful and, therefore, which they should develop their games for? And those kids in the playground, they could only share and trade games if they happened to be using the same hardware as their friends.



Surely, the solution to these issues would be one universal hardware format that could eliminate the concerns of consumers and developers and ensure that no matter what game you bought, it would work on your own machine. It was a good idea in principle, after all, it had worked for the home video industry, as competing tape manufacturers gradually gave up on their own formats throughout the Eighties and came to support JVC's VHS standard.

One man with the vision to realise the dream of a unified gaming platform was Kazuhiko Nishi, a prominent figure in the Japanese games industry from its very inception. In 1977 he founded a publishing company called ASCII Corporation, which specialised in games magazines and launched the country's first micro-computer periodical, named *ASCII*, in the same year. In 1979, he joined Microsoft and became the vice president in charge of the Far East and, later, the director and vice president in charge of new technologies, all while maintaining a controlling interest in the ASCII Corporation. And it's during this time that he proposed the MSX standard.

On June 27, 1983, the MSX was officially unveiled to the world as a collaboration between ASCII and Microsoft. The former would control and license the hardware specification, while the latter would program the format's operating system and BASIC language. Impressively, the MSX group had already attracted a huge number of Japanese manufacturers to the cause, and big names like Sony, Toshiba, Panasonic and Yamaha, among many others, announced that they would release their own MSX machines in Japan.

The plan was simple yet brilliant. Every licensed manufacturer would be allowed to create any kind of computer they wished and badge it with the MSX logo as long as it incorporated a strict number of features. These were a Zilog Z80 processor, running at 3.58MHz; a minimum of 8kb RAM; a Texas Instruments TMS9918 Video Display Processor; a General Instruments AY-3-8910 sound chip; and a 32kb ROM containing the MSX BIOS and Microsoft's MSX BASIC. Compatibility between machines was achieved by making sure all models also featured the same keyboard, cartridge slot, and expansion ports, but manufacturers could also add their own USPs like additional cartridge slots, tape drives, extra RAM, and so on. Many of these extra features were dictated by the way each company decided to position their own MSX model within the market. Some, like the Toshiba HX10, were sold simply as game machines and were produced to the lowest possible specification to remain affordable and were usually packaged with a pair of joysticks. Yamaha, meanwhile, marketed its MSX models as companions to the company's synthesizer keyboards and consequently built MIDI ports into most of its machines, bundling them with audio leads and music

> **"Manufacturers could add USPs like additional cartridge slots, tape drives, and extra RAM"** ON THE MSX MODELS

1983 (MSX) 1986 (MSX2) 1988 (MSX2+) 1990 (MSX Turbo R)

Various. Example - ¥16 500 (Toshiba HX10)

£10-£80 depending on model

What MSX?, MSX Computing, MSX User, MSX Fan, MSX Ouendan

Though it failed to make a splash in the UK, the MSX was an important machine elsewhere around the world. It was the first taste of home computing for many in Japan, Holland and Brazil, was Microsoft's first real investment in videogames, nearly two decades before the Xbox, and the first computing 'standard'. It is remembered now for its weird and wonderful hardware variations and its catalogue of Japanese games that spawned several evergreen franchises

INSTANT EXPERT

- **Nobody really knows** what MSX means. Microsoft claimed that it meant MicroSoft eXtended. N shi, however, claims that it means Machines with Software eXchangeability
- **The MSX computer** was popular in parts of Eastern Europe because it was very good at creating subtitles for illegally distributed foreign videotapes
- **Some Konami games** had both a disk and cartridge in the box, but you'll struggle to find the carts these days. Many of them were bought separately by music enthusiasts for the SCC+ sound chip they contained
- **Many MSX models** had two cartridge slots. Konami took advantage of this by building secrets into its games that you could only access with two cartridges at once – similar to the way that GBA games often unlock content in DS games now.
- **Konami released so** many MSX games that in 1998 it released a compilation of them for the Saturn and PlayStation. The *Konami Antiques MSX Collection* featured 30 such games but, sadly, no MSX2 titles.
- **The 'Beecard' format** used in NEC's PC Engine console was first used on the MSX. It was manufactured by Hudson and required a special adaptor cartridge to load it
- ***Metal Gear 2: Solid Snake*** is probably the best MSX2 game. It was only officially translated in 2006, however, when it appeared as a bonus feature in *Metal Gear Solid 3: Subsistence* on the PS2.
- **A handful of** the MSX licensees later tried their hand at another 'single format' console the unsuccessful 3DO
- **Though Microsoft hasn't** been involved with the MSX since 1988, the name lives on in the company. It's the internal product code for the Xbox.
- **A staggering 265** different MSX models are known to exist, but there may be more. Nobody knows exactly how many variations were manufactured

COMMUNITY MSX SITES TO WATCH

MSX Museum bOX
www.passionmsx.org, nlsxgamesbox museum/index.php

MSX Museum bOX is the best way to find out about the many variations of the MSX hardware Organised by manufacturer and featuring over 200 photographs t s a comprehensive archive

Generation MSX
www.generation-msx.nl

A bit like Lemon64 but for the MSX this site has spent the last decade attempting to catalogue every MSX game In addition to the games listings you ll also find a library of historical images and a forum populated by friendly MSX gamers

MSX Resource Center
www.msx.org

The most comprehensive English language news service for the MSX It can get a bit technical sometimes, but if you need to know about new translations and homebrew games this is your first stop The forum s friendly and helpful too

The Ultimate MSX FAQ
www.faq.msxnet.org

As the name suggests, the Ultimate MSX FAQ is comprehensive with all the info you ll ever need to know about the MSX and its software Everything is covered from a history of the project to in-depth analysis of the hardware and relevant info about the fan community

» The MSX achieved some success in the Netherlands, as evidenced by this example

software. Others, like Sony, aimed their hardware at the professional markets, fitting the machines with as much RAM as possible and often building floppy disk drives and even LaserDisc or VHS samplers into the hardware

The diversity of the early MSX models was instrumental in gaining a foothold in Japan. Consumers could buy with confidence, knowing that any MSX-branded software or hardware they bought would work with their own machine, while the different price brackets meant that dedicated users could buy a high-end machine for the workplace and a much cheaper, but fully compatible, machine for the home The standard was considered a success and, with the combined force of its licensees, became a worthy contender to other Japanese computers of the time, like NEC's PC98 series

This early success naturally attracted the attention of a number of videogame publishers and many of Japan's best soon began to support the standard Konami, Hudson, Square, Compile, Enix and Falcom all developed and published several games for the system, and many of those companies' most famous franchises began life on the MSX

Having gained a strong position in Japan the MSX Association naturally set its sights on the US market next, but things didn't go so well this time. The US, of course, had been gripped by Commodore fever since 1982, and only a fool would gamble on an outsider taking away the C64's formidable market share with a technically inferior machine. Only one US company, Spectravideo, bothered to license the standard in 1984 and had little impact on the market. Yamaha also brought some of its MSX models over to the US, but they were marketed under the umbrella of music technology and went ignored by games fans and computing enthusiasts

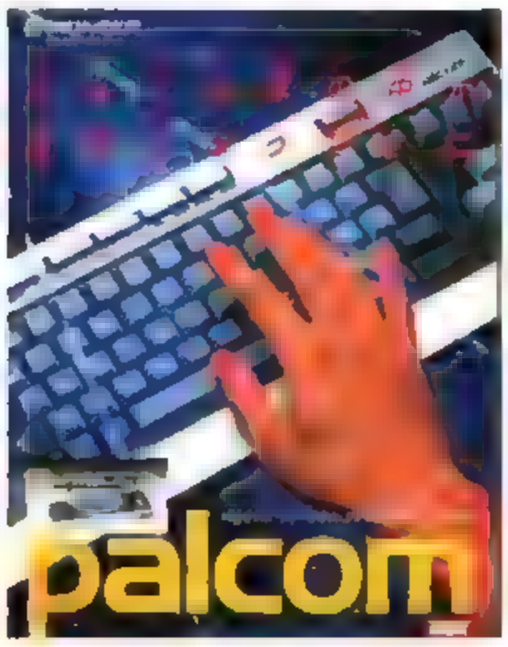
> **"The MSX was attacked as a foreign import"** ON THE FAILURE OF THE UK MSX

Retreating from the US, never to return, the MSX Association concentrated on other, less monopolised territories instead Seeing the widespread use of 8-bit micros in Europe, the alliance moved in to take advantage of the eager consumer base Some of the Japanese licensees, particularly Toshiba, created PAL versions of their low-end machines for Europe, while Dutch electronics giant Philips became an official licensee and one of the format's biggest supporters worldwide

In the UK, the MSX was met with a mixture of indifference and animosity As in the US, the underpowered hardware made MSX games look weak in comparison to Commodore 64 titles, while the more impressive games, such as Konami's excellent arcade ports, were only released on cartridge and seemed vastly overpriced in comparison to the tape software that most were used to As a result, the UK MSX became lumbered mostly with second-rate ports of Spectrum games and was once venomously attacked in a *Crash* editorial as a foreign import that could rob British developers of their national identity

With its confused catalogue of software and one of the country's favourite games magazines dead against the system, the MSX never really took off in the UK, but it did perform well in other parts of Europe Holland, in particular, embraced the machine with open arms. This was the home country of Philips, after all, which relied upon national goodwill toward its own brand, as well as its truly excellent hardware variations, to take a firm grip of the Dutch computer market To this day, the MSX remains extremely popular in what is now the Netherlands.

» Kazuhiko Nishi addresses attendees of a Dutch MSX convention in 2001 and reveals his plans for the 'MSX Revival'



• "Please buy me an MSX." How could you say no to those eyes?

• Konami converted many of its arcade hits to the MSX. Few were graphically faithful ports, but they were still a lot of fun to play

where it is remembered with the same fondness as the Spectrum and Amstrad are in Britain.

Other territories outside of Japan that also embraced the MSX system include Brazil, which explains the huge number of Portuguese-language fan sites on the web, and Saudi Arabia, where the standard became the first home computer to be made available in the country. Pioneering Saudi Arabian technology affiliates Sakhr and Al-Alamiah licensed several MSX models and created the world's first Arabic word-processing standard around the machines, a move that ensured the companies a place in the computing industry that survives to this day.

Despite its great start in Japan and limited success throughout the rest of the world, the MSX didn't have many more years left in it, and by the mid-Eighties it was starting to look quite dated in comparison to other computers. By 1985, European gamers eagerly cast their gaze westward, to the fledgling Amiga and Atari ST formats with their incredible 16-bit performance. Meanwhile, closer to home, Nintendo's Famicom had achieved dominance of the Japanese videogame industry and threatened to crush the MSX under its giant red and white boot. Although both machines were technically both 8-bit, Famicom games appeared far superior thanks to a number of flaws in the MSX design. The way in which the MSX addressed its video RAM was relatively slow and prevented smooth scrolling from screen to screen, thus limiting most of the MSX's games to flip-screen visuals. In addition, the computer's high-res mode wasn't quite up to scratch and created a colour-clash effect similar to the one that plagued Spectrum games.

These flaws were acceptable by the standards of 1983, but they soon made the MSX look old and rusty as new machines entered the market, and so the MSX group designed a new format that could compete with its contemporaries while remaining backwards compatible with the original software. This new standard was simply named MSX2 and, in addition to the usual hardware upgrades such as a faster processor and extra RAM, the graphics chip had five new video display modes built in. Some of these allowed games to play in high-res without colour clash, others were used to display digitised images on title screens or in desktop publishing software. In-game scrolling was slightly smoother on the MSX2, although it did cause some sprite flicker in the most complicated games. Most MSX2 machines also featured a 3.5-inch floppy disk drive, which allowed developers to produce their software at a greatly reduced cost in comparison to cartridges and gave home users a much more reliable storage solution than cassette tapes.

In some ways the MSX2 was a huge success, but in other ways it was an equally large failure. The standard was completely ignored in the US and UK and was not widely adopted in the poorer regions like Eastern Europe and South America, which left only Holland and Japan to keep the MSX flag flying. As before, Philips happily licensed the MSX2 technology and produced some wonderful hardware under the standard. Japanese licensees weren't as supportive as they had been for the original MSX, but many of the biggest manufacturers, such as Sony, Samsung and Panasonic, continued their support and created all manner of MSX2 units.

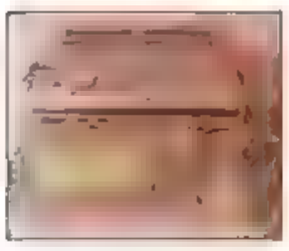
Although the MSX's global presence was notably shrinking, the support of manufacturers in Japan and Holland ensured that the format held on to its two key territories and many game developers consequently stayed with the machine. Konami, the biggest Japanese developer of MSX games, had moved on to the Famicom but had kept its MSX division alive, and it is in the MSX2 period that this division created its greatest games and, therefore, the best games on the system. With *Metal Gear* creator Hideo Kojima still posted to the MSX

• Kazuhiko Nishi, the father of the MSX

VERSIONS SOME OF THE BEST

NATIONAL FS4500

Japan's National Corporation licensed the MSX format in order to create its own series of word processors and the FS4500 is one of the most interesting. Not only does it have plenty of software built in, but the hardware includes a 24-dot thermal printer.



NTT CAPTAIN

CAPTAIN stood for Character And Pattern Telephone Access Information Network and was an early state of the BBS in Japan that looked similar to Teletext. NTT created machines that allowed home users to access the BBS, and this particular model was MSX2-compatible.

TOSHIBA HX10

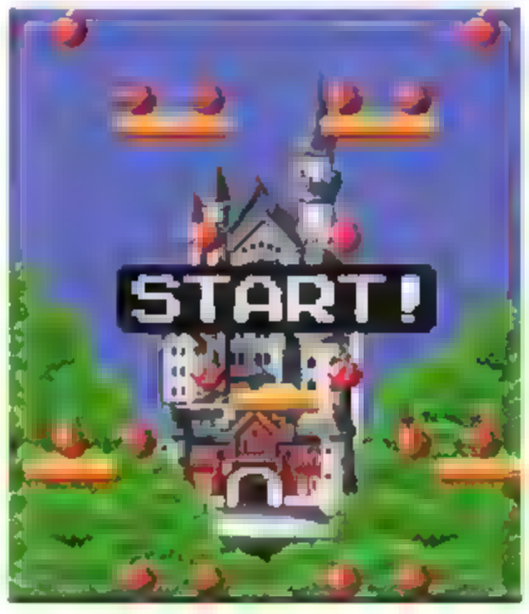
If you're from the UK and owned an MSX in the Eighties, chances are you owned the Toshiba HX10. It was the most widely available model and is still the one most often seen on eBay. It's a basic, unremarkable MSX model, but it came with lots of documentation.

ZEMMIX CPC-50

This console was manufactured by Daewoo and released only in Korea where its software arm, Zemina, supported the console. The majority of its cartridges were apparently unofficial versions of Japanese Konami games and hacks of Nintendo Famicom games.

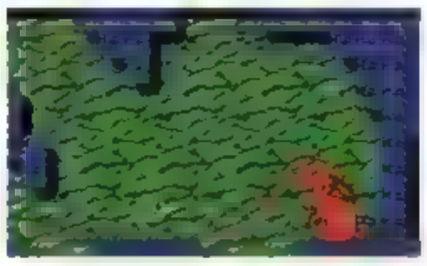
1CHIPMSX

The last official MSX hardware was created as recently as 2006 by the MSX Association and D4 Enterprise, which plays real cartridges or ROMs from an SD card. The console was intended for European release in 2007 but those plans have seemingly failed.



» The MSX has an extremely healthy homebrew following, kept active by yearly competitions and fairs. There are some great little arcade-style games available as ROMs or even semi-professional disks and carts.

» Caught on camera: this still from a Nineties news report shows a Sony MSX machine in use aboard the International Space Station.



» *Penguin Adventure*, one of the best MSX games and one of the most emotional title screens in history.

team, the format benefited greatly from the designer's newest creations like *Metal Gear 2: Solid Snake*, *Snatcher*, and *SD Snatcher*. Other Konami teams also created their own brilliant games, such as the horizontal shoot-'em-up *Space Manbow*, *Ganbare Goemon* (*Mystical Ninja*), and *Vampire Killer* (*Castlevania*). The likes of Capcom, Compile, Namco and Taito all released games for the MSX2, many of which were arcade conversions that were much more accurate than their MSX equivalents, and the format received a known 1,200 games in its lifetime. But that wouldn't be enough to save the MSX's skin.

Ever aware that the MSX was fighting a losing battle, Kazuhiko Nishi struggled to understand why more people were not interested in his machine. Offering an MSX to his grandmother, he pointed out all of the things she could do with it. "You can write letters," he said. But she told him she could already do that with a pen and paper. "You can work out stock prices," he countered, to which she held up her calculator. Finally, he explained that she could use the machine for entertainment. "But," she said, "I have a TV for that."

Nishi thought long and hard about how he could make the MSX relevant to the lives of ordinary people. He considered technologies that had been widely adopted throughout Japanese households like television, radio, and the telephone and realised that they all had one thing in common: they existed in a communications network. If only he could network all of the MSX systems to communicate with each other, as well as receive software from a remote broadcaster, then consumers would feel like they were missing out on something without one in their home. He was, of course, thinking about the internet, but this was 1986 and such technology was still in its infancy, way out of the reach of affordable home electronics for at least another ten years.

In the meantime, the MSX group took another stab at perfecting the hardware, although this time they did it without Microsoft, which had washed its hands of the MSX and declined to improve any of the built-in software. This was presumably because the IBM PC was picking up speed in the west and Microsoft didn't need to compete with its own Windows 2.0 operating system.

In 1988, instead of creating an entirely new machine, ASCII designed the MSX2+, which included a built-in 9-channel FM synthesizer, the ability to display still images in up to 19,000 colours, and three new video modes, one of which totally eliminated the flickery scrolling that had plagued the MSX since 1983. The hardware itself featured two sliding dials – one to change hardware speed and the other to enable auto-fire – as well as an import-friendly RGB output.

Sadly, but quite inevitably, support of the MSX2+ was even weaker than for the previous two machines. As the new machine was quite rightly seen as a meagre update to the MSX2 and not a serious market challenger, most MSX licensees didn't see the point in producing new hardware. Only Sony, Sanyo, and Panasonic ever developed any MSX2+ computers, and

only a handful of games were ever made exclusively for the system.

When it became time to think about creating an MSX3 in 1990, Nishi cast aside his ambitious network ideas and set his sights on the CD-ROM. Noting that console manufacturers like Sega and NEC planned to add CD-ROM drives to their consoles ASCII considered integrating CD-ROM as standard into the next MSX hardware but eventually decided against it because it felt the seven-year-old medium would soon be superseded. It was right, of course, but it would take another seven years before DVD would materialise.

Not embracing the CD-ROM was arguably the last straw for the MSX manufacturers. Philips, the original creator of the CD, hadn't supported MSX for some time and by 1990 it was clear why. The Dutch giant was working on its own computer technology, the CD-based CD-i, which was sure to be capable of much more than the now extremely dated-looking MSX. Sony, likewise, had moved away from MSX and toward CD, as it worked secretly with Nintendo on the SNES-CD project, which was due for release in 1991 but would eventually resurface in 1993 as the Sony PlayStation.

By 1990, the list of MSX licensees had dwindled to just one. Panasonic, which helped create the final MSX standard, known as the Turbo R. Two variations of this underpowered 16-bit machine were created but both went by unnoticed. The Turbo R was too little, too late. The format's once-loyal developers knew it and shifted their allegiance over to Nintendo, Sega and NEC, if they hadn't already done so. The MSX was dead and Nishi finally turned his back on the system, choosing to concentrate on ASCII's other business interests and taking a job as a media engineering lecturer at the Tokyo Institute of Technology.

In truth, though, the MSX had really died around the introduction of the 2+. The earliest success of the MSX came from a strength in numbers, afforded by the combined brand identities and market presence of the system's licensees. But as ASCII failed to improve upon the MSX specifications in ways that appealed to those licensees, their numbers dwindled to the point where not enough machines were manufactured to attract the software developers. From there the MSX fell into a spiral of decline. As fewer developers created new software, the machines became less attractive to consumers and licensees saw fewer reasons to manufacture more hardware. And then, of course, IBM and Microsoft virtually created the modern-day computing standard with the Windows-based PC, a format so successful that it relegated the MSX to the status of failed experiment.

> **"Nishi was thinking about the internet in 1986, when such tech was still in its infancy"** THE UNFULFILLED FUTURE

And that's where our story ends.

Except it doesn't, because in 2001 Kazuhiko Nishi made a shock appearance at an MSX fair in Tilburg, the Netherlands, and announced his plans to revive the MSX format. Speaking to surprised attendees at the show, Nishi openly discussed the lengthy history of the MSX format and declared that there was still a place in the world for the MSX.

As it turns out, that place wasn't a brand new world-conquering system but an actual 'revival' that would enable new users, as well as enthusiasts, to experience the retro MSX in a brand new way. Under the name of the MSX Association, of which Nishi is the chairman, the revival began with the release of the MSXPLAYer, a small USB device that allows real MSX cartridges to be plugged into a PC and played on an official MSX emulator. Next, the association worked with D4 Enterprise on Project EGG, another official emulation program that allowed both old and new MSX software to be downloaded for a small fee and played on a PC. A European version of this project, called WOOMB.net, was also started by a company called Bazix in 2006, but it was sadly discontinued in June 2008, due to a disagreement with the MSX Association.

Finally, in 2006, the MSX Association teamed with D4 Enterprise and ESE Artists' Factory to produce the first new MSX hardware in 16 years. Known as the 1chipMSX, the new hardware uses an FPGA chip with the full MSX2 chipset programmed into it and can play commercial MSX cartridges as well as downloaded ROMs on an SD card. The 1chipMSX is due to be released in Europe in the future, once the MSX Association finds a suitable distributor. Until then, if you want one you'll have to keep an eye on eBay or trawl a few game stores in Tokyo, where **Retro Gamer** found our own unit.

Quite what the future holds for the MSX we do not know, but we doubt that it will remain a relic of the past like so many other 8-bit micros of its time. The original creator still holds the rights to the name and is clearly intent on keeping it alive, and when it comes to a guy like Nishi, who can throw the sort of curve balls that he did with the announcement of the latest MSX revival, literally anything could happen in the next few years.

KONAMI KOMBOS

Several MSX machines had two cartridge slots built in, a feature that Konami made smart use of by unlocking cheats and Easter eggs in some of its games by combining them with others. Here are some of the most interesting combinations to try.

- ***Yie Ar Kung-Fu 2* with *Yie Ar Kung-Fu*** – Just before death, your father appears with a nice cup of tea.
- ***Nemesis* with *TwinBee*** – Replaces the Vic Viper with a TwinBee and the power-ups with bells.
- ***Ganbare Goemon* with *Q*Bert*** – Unlocks a hidden level select mode and pause function.
- ***The Maze Of Galious* with *Knightmare*** – You can revive the player 99 times rather than the standard one.
- ***Nemesis 2* with *Penguin Adventure*** – Changes the Vic Viper to a penguin and power-ups to fish.
- ***Usas* with *Metal Gear*** – You lose half the usual amount of energy.
- ***Salamander* with *Nemesis 2*** – Unlocks a secret final level.

SPECIFICATIONS

MSX: 3.58MHz Z80 processor, 8kb-128kb RAM, 16kb video RAM, 256x192 resolution (with 16 colours), AY-3-8910 sound chip.

MSX2: 3.58MHz Z80 processor, 64kb-512kb RAM, 128kb video RAM, 512x212 resolution (with 16 colours), 256x212 resolution (with 256 colours), YM2149 sound chip.

MSX Turbo R: 7.16MHz R800 processor, 256kb-512kb RAM, 128kb video RAM, 256x212 resolution, YM2149 sound chip.

PERFECT TEN GAMES

Owing to its high cost and nonexistent retail support, the MSX was constantly overshadowed by the Spectrum, C64 and the CPC in the UK. It's a real shame, because the MSX provided a whole host of fantastic games, and even proved the early stomping ground for many of videogames' most popular franchises. Here's the proof.

SPACE MANBOW

- **RELEASED:** 1989
- **PUBLISHER:** KONAMI
- **CREATED BY:** KONAMI
- **BY THE SAME DEVELOPER:** [illegible]

01 **Not only the** greatest shoot-'em-up on the MSX but one of the best shoot-'em-ups period. Konami's wonderfully titled *Space Manbow* is a mesmerising tour de force for the machine that captivates and engages from its opening level – a wonderfully grounded take on the Bydo frigate stage in *R-Type*. From here the game continues to impress, thanks to fantastic arcade visuals, a strident soundtrack and frenetic shoot-'em-up action, which scrolls smoothly both vertically and horizontally, with very little slowdown when things get busy. While rare and expensive to come by these days – a complete boxed version will cost you around £100 – *Space Manbow* is wholly worth seeking out for any MSX collection.

01

ALESTE 2

- **RELEASED:** 1989
- **PUBLISHER:** COMPILE
- **CREATED BY:** COMPILE
- **BY THE SAME DEVELOPER:** PUYO PUYO

02 **Three *Aleste* games** appeared on the MSX, and all are worth seeking out. While the final game in the trio, *Garden*, would supplement air, jets and spacecraft with Japanese robot suits, there's really not much separating the games in terms of their quality. Compile's popular shoot-'em-up franchise is fabled for its repetitive, open feeling levels, fast-paced gameplay, deep weapon system and a neat mechanic whereby the very touch of a power-up will grant you momentary invulnerability. As we can only pick one game, it has to be *Aleste 2* because it looks superb, allows you to select your weapons at the start of the game, and is the first title in the canon to feature reoccurring protagonist Ellinor.

02

PENGUIN ADVENTURE

- **RELEASED:** [illegible]
- **PUBLISHER:** KONAMI
- **CREATED BY:** HIDEO KOJIMA
- **BY THE SAME DEVELOPER:** [illegible]

03 **This follow up** to *Antarctic Adventure* finds heroic penguin Pentaro seeking a cure for a sick penguin princess who has succumbed to a deadly plague. Getting shot to notoriety late in life for being Hideo Kojima's first published title for Konami, *Penguin Adventure* is one of the finest and most tech-savvy games to appear on the MSX. The game is essentially an action racing game, viewed from that into-the-screen perspective, and starring a cast of sickeningly cute penguins. Penguin games simply don't get better than this.

VAMPIRE KILLER

- **RELEASED:** 1986
- **PUBLISHER:** KONAMI
- **CREATED BY:** KONAMI
- **BY THE SAME DEVELOPER:** [illegible]

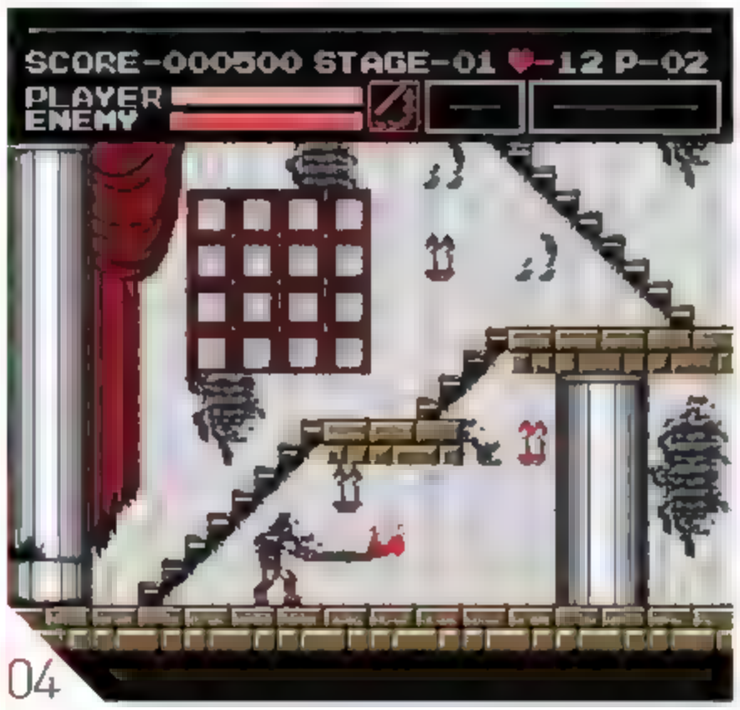
04 **The first ever** *Castlevania* game to be released in Europe, *Vampire Killer* is actually quite different to the more established NES game on which it was based. The MSX2 exclusive swaps out-and-out action for a more considered 'search for a bunch of keys in a castle' action. Why Konami felt the need to go and mess with the original is a mystery – we can only think that perhaps Konami felt that people who play games with keyboards need something deeper to sink their teeth into than those who use joypads. Neither is better than the other in the end but NES and MSX fans will argue that their respective version was the best until the end of time, anyway.

BOMBER MAN

- **RELEASED:** 1984
- **PUBLISHER:** HUDSON SOFT
- **CREATED BY:** HUDSON SOFT
- **BY THE SAME DEVELOPER:** MARIO PARTY

05 **Spectrum owners will** recognise this game as *Eric And The Floaters*, but the game's MSX version went under the more familiar and seminal title of *Bomber Man*, and marked the first appearance of Hudson Soft's infamous bombardier. This maze-based action game finds our hero looking less like a cute Japanese robot and more like Miner Willy (circa *Jet Set* era) with a blue mullet (only visible in the MSX version). Unlike later versions, this was single-player only and therefore a lot less fun. But it remains a fascinating insight into the origins of a true videogame legend nevertheless.

03



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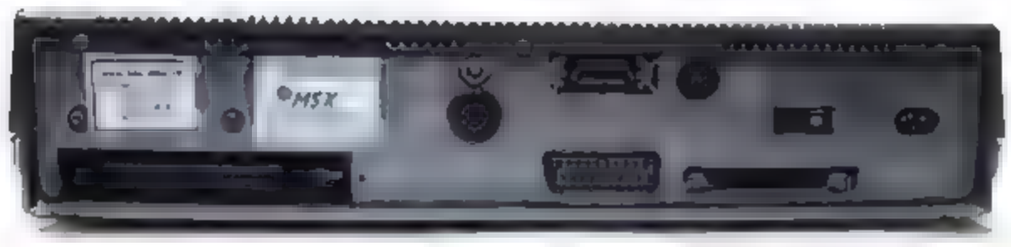
SPECIAL THANKS TO GENERATION-MSX.NL FOR ADDITIONAL SCREENS



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08

METAL GEAR 2: SOLID SNAKE

- **RELEASED:** 1990
- **PUBLISHER:** KONAMI
- **CREATED BY:** HIDEO KOJIMA
- **BY THE SAME DEVELOPER:** POLICENAUTS

06 **There are** actually two versions of *Metal Gear 2* – one by Konami that was released for the NES, the other by Kojima that was released for the MSX. To be frank, both games are good, but the MSX sequel is the better of the two. It employed several nice touches, like using carrier pigeons, hang-gliding and even tap codes, and established many gameplay ideas that would go on to make PSone's *Metal Gear Solid* such a classic. This was never released outside Japan but a translated version appears in *Metal Gear Solid 3: Subsistence* on PS2.

SD SNATCHER

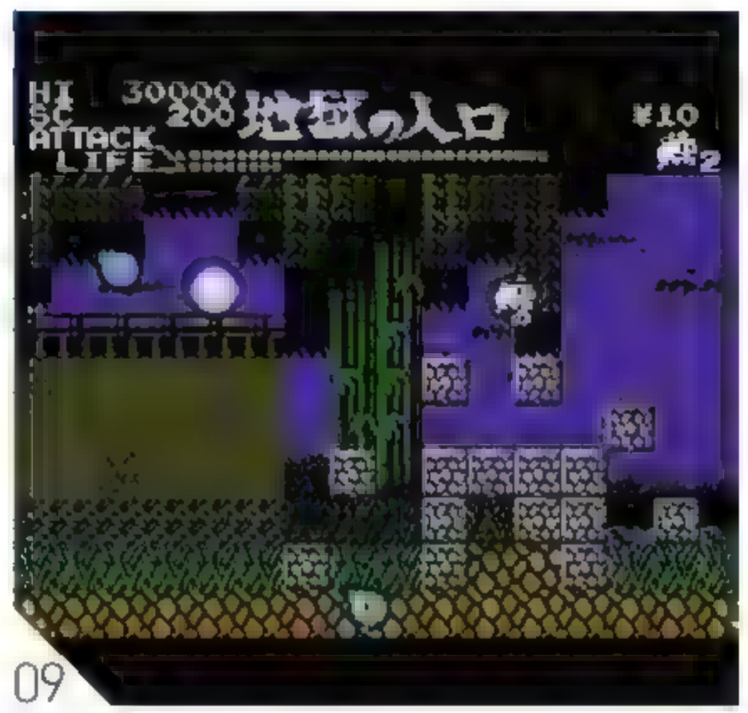
- **RELEASED:** [illegible]
- **PUBLISHER:** KONAMI
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

07 **Like *Metal Gear*** before it, Kojima succeeds in creating an emotive narrative around the limitations of the hardware. Following a similar plot to the original – Gillian is still trying to eradicate the body-pinching Snatchers – this switches the cinematic look of the original for a 'super deformed' anime style. It also drops the point-and-click comic book gameplay in favour of an RPG system. Engaging enemies in combat also switches the viewpoint to a first-person battle screen, where players could pinpoint specific body parts they wanted to attack. Easily one of the most immersive adventure games on the system.

GOLVELLIUS 2

- **RELEASED:** [illegible]
- **PUBLISHER:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

08 **Compile had an** excellent track record on the MSX. Sadly, though, the company closed its doors in 1992 and many millions of people wept into their MSXs. Anyway, if you're looking for a *Zelda*-like adventure for your machine you won't go far wrong with *Golvellius 2*. The series began life on the MSX and the Master System, but would later get a confusingly titled remake for the MSX2. Viewed from a similar perspective, and featuring an overworld-style map and dungeon exploration similar to *Zelda*, the game's fluidity, action, visuals and variety make it a real must for any role-playing game fan.



09

YUUREIKUN (AKA MR GHOST)

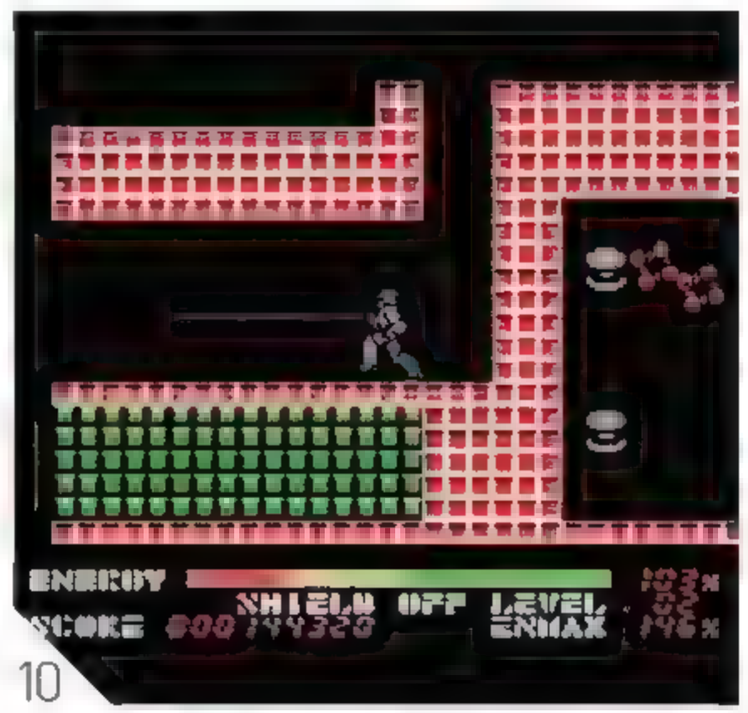
- **RELEASED:** 1989
- **PUBLISHER:** SYSTEM SACOM
- **CREATED BY:** SYSTEM SACOM
- **BY THE SAME DEVELOPER:** MARCHEN VEIL

09 ***Mr Ghost* is** a side and vertical – the game alternates between the two – scrolling shoot-'em-up where you play a buck-toothed ghost who's being bullied by other ghosts, jumping spiders, and crows, probably about his prominent teeth. *Mr Ghost* plays remarkably close to Irem's *Mr Heli*, so much so that they could, in fact, be related. Both games let your character move in eight directions, both allow you to deform parts of the environment, and both have a super-deformed look to them. What sets this game aside though, is its combat system. Mr Ghost dispatches a little sperm-looking ghost at enemies and can only redeploy him after he's returned. Mr Ghost can also perform a bum-rush to destroy enemies sneaking up behind him or break bricks.

THEXDER

- **RELEASED:** 1985
- **PUBLISHER:** GAME ARTS
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** GRANDIA

10 **This great giant** robo side-scrolling shoot-'em-up is a great example of the genre. The player assumes the role of a *Robotech*-esque robot with the power to transform into a jet plane – the transformation effect in the game is actually pretty impressive – and must negotiate a series of labyrinthine stages – often by repeatedly switching between the robot's two forms – before getting blown to smithereens by patrolling enemy droids. It's a really simple premise but one that becomes strangely addictive. The puzzle/strategy element and laser, which is only available to you in your robot form, was a notable inspiration to Treasure's *Bangai-O*. A sequel, called *Thexder Neo*, is now available on Sony's PSP Minis service.



10

THE FAMILY COMPUTER

WITH OVER 50 MILLION UNITS SOLD WORLDWIDE, THE FAMICOM/NES IS ONE OF THE MOST POPULAR CONSOLES OF ALL TIME AND MAINTAINED PRODUCTION FOR AN AMAZING 20 YEARS. DURING THIS TIME THE SYSTEM WAS HOME TO MANY OF TODAY'S BIGGEST FRANCHISES AND PIONEERED SEVERAL HARDWARE INNOVATIONS. JOHN SZCZEPANIAK EXAMINES THE ORIGINAL JAPANESE FAMICOM AND ITS DISK SYSTEM SIBLING

The Famicom. The original Japanese design was deemed too toy-like for Western tastes.

The Japanese counterpart to the West's Nintendo Entertainment System was superior in almost every respect. It's perhaps surprising, then, that few people outside Japan know the full impact it had on gaming history. Production of the Famicom was discontinued in late 2003, having outlasted every other console ever developed. Even then, the assembly line was only stopped due to difficulty in obtaining the necessary electronic components.

To commemorate the Famicom's passing, various groups set about creating dedication memorabilia. The Tokyo Metropolitan Museum of Photography held a Famicom arts exhibition from 4 December 2003 to 8 February 2004, showcasing every game released for the Japanese machine, along with various peripherals and model versions.

Enterbrain, in association with the famous Japanese gaming magazine *Famitsu*, commissioned a commemorative Famicom DVD, featuring interviews, the televised *Star Soldier* tournament from 1986, and the results of a *Famitsu* poll of Japan's 100 favourite Famicom games, which, unsurprisingly, consisted heavily of RPGs and shooters.

FAMICOM FEVER

The Famicom was launched on 15 July 1983. Initially, only a handful of games were released for the system, including *Donkey Kong* and *Popeye*. Designed based on the ideology that "form is superior to mass", Nintendo wanted to avoid Atari's mistake of releasing vast quantities of low-quality games that had eventually crashed the US games market. It believed that, in order for the system to succeed, the software would have to be of the highest quality. The Famicom was an instant success, with long queues forming and shipments selling out as fast as they could be delivered. To maintain quality Nintendo placed strict licensing restrictions on prospective developers.

Licensing costs were high and licensees were only allowed to release a certain number of games per year to ensure that the titles were of a relatively high quality.

The Famicom AV appeared in 1993, featuring AV composite output – hence the name.

Japan was suddenly hooked. Everyone, from schoolchildren to salary men, was playing the Famicom, the lure of Shogi and *Mario* simply proving too strong. In Japan, gaming was not merely a child's pastime and even professionals, such as the famous copywriter Shigesato Itoi (*Mother* series), had their interests piqued by the possibility of increasing their 'creative assets' by writing good games. Many of today's established games designers started producing titles for the system during this time. Satoshi Tajiri, the creator of *Pokémon*, first cut his teeth on the Famicom hardware back in the Eighties, creating the cult classic *Quinty*. To do this, Tajiri bought old circuit boards from Akihabara junk shops and combined them with parts from his Famicom system. The legendary Shigeru Miyamoto also began his console career on the Famicom, and Hideo Kojima hoped to be assigned to the machine when he joined Konami.

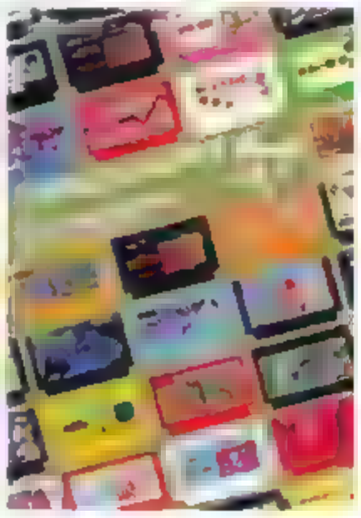
"THE FAMICOM WAS A SUCCESS, WITH SHIPMENTS SELLING OUT AS FAST AS THEY COULD BE DELIVERED"

The Famicom was still popular well into the Nineties, so much so that Nintendo was reluctant to release its successor, the Super Famicom, and only did so due to the pressure of rival companies releasing their own superior hardware. Regardless of this, the fascination with the Famicom remained, and in 1993 the console was remodelled to celebrate its 10th anniversary. Many features were removed in order to lower the cost, but the Famicom AV had a sleeker and more compact appearance. Software development for the system officially halted in the mid-Nineties, and the final game released in Japan was *Takahashi Meijin No Boukenjima IV* (aka *Adventure Island 4*) on 24 June 1994. Hardware production, however, continued until 2003, long after its Western counterpart's sales had ground to a halt. In fact, in the years leading up to its 20th anniversary, output had to be increased to meet the demands of adults who were buying the machines in order to relive their childhood memories.

MAKING A MARK

The Famicom is a landmark system, not least because it introduced many innovations now taken for granted. Even today, the cross-

The commemorative DVD, featuring Japan's best-loved Famicom games.



THE FAMILY COMPUTER

In Japan, the Famicom came with illustrated comic books

"ALTHOUGH THE DREAMCAST WENT ONLINE, THE FAMICOM GOT THERE FIRST"

Disky business

In February 1986, Nintendo took the bold step of releasing a Disk System add-on for the Famicom. Although this wasn't as successful as it could or indeed should have been, it had the potential to change the face of gaming forever. Created to lower the price of games by using proprietary-made rewritable disks, it was possible to purchase new games on a regular basis as easily and cheaply as renting DVDs today. Gamers could buy a blank disk from Nintendo, costing 2,000 yen (around £10) and for 500 yen (£2.50) write any of the supported titles onto this disk via small vending machines found in stores throughout Japan. Pre-loaded disk games complete with manuals were also available from around 3,000 yen (£15), but some FDS titles were download-only. This effectively reduced the cost of cartridge production, which at the time was very expensive, thereby lowering prices considerably and allowing for the production of much larger games. As the disks were rewritable, it meant that any game you didn't like could be easily replaced with a new one and game data saved without the need for costly battery backup. Titles such as *Metroid*, which in the West had a complex password system, could incorporate save features in Japan because of this. Many games were converted from cartridge and several disk exclusives were also produced, including *Super Mario Bros 2* (*The Lost Levels*)

Sadly, though, pirates soon found ways of copying the disks, and the market was flooded with cheap bootlegs. In addition, the cost of cartridge manufacturing started decreasing, resulting in bigger cartridges that surpassed the memory limits of the disks. All of this resulted in companies slowly abandoning the FDS. Another problem for the hardware was that its drive belts were notorious for breaking. Later, combined cartridge and disk systems were released by companies such as Sharp, but it was too late. FDS software development was eventually stopped, and in 1993 the vending machines were dismantled. Had it been more successful, the gaming world would probably be a very different place today

shaped directional pad and Start/Select buttons are used on modern controller layouts – Nintendo's handheld Game & Watch series was the first to utilise D-pad technology. It was also the first system to use voice-recognition technology via a small microphone built in to the control pad. In *Raid On Bungeling Bay* the second player could control his fighters by shouting into it, while *Kid Icarus* players were able to gain discounts if the player spoke directly to the game's merchants. In *Takeshi No Chousenjou*, the player was told to sing karaoke-style into the microphone in order to progress further, although few succeeded since the voice-recognition technology wasn't entirely reliable.

While many believe the Sega Dreamcast to be the first console to go online, the Famicom actually got there first. Several network adaptors and modems were released that plugged into the system so various connection setups could be used, enabling users to check text messages and horse-racing results. Sadly, online gaming was never implemented.

As the Family Computer name claims, it was also possible to turn the console into a form of semi-computer, complete with its own unique programming software (Family BASIC) and keyboard. This enabled many users to start programming their own simple, home-made games and get a taste for the hardware. Speaking of hardware, its Western equivalent also set precedents – specifically, the region lockout that stopped US games being played on a European NES and vice versa, which infuriated gamers and went on to become a console standard of the present day.

Classic gaming

Games-wise, Nintendo made good on its promise and released large amounts of extremely high-quality software. Famous franchises such as *Final Fantasy*, *Dragon Quest* and *Metroid* started life on the Famicom, and though first released on the MSX, series like *Goemon* (*Mystical Ninja*), *Castlevania* and *Metal Gear* also made their console debut on the system. Readers might be unaware that a *Biohazard*/*Resident Evil* semi-predecessor was also made for it. Entitled *Sweet Home*, it was an RPG by Capcom that featured several key gameplay elements that would go on to heavily influence the survival horror series that followed, as well as being set in an abandoned mansion. Many would argue that survival horror started with *Alone In The Dark*, but some credit should at least be given to the Famicom.

Advances in technology and design scope meant Famicom and FDS games could increase in size and quality. Games began incorporating unique gameplay elements, and a good example of this is *Otocky*. A music-influenced product combined with classic shooter gameplay, *Otocky* was described as a cross between media art and videogames – *Rez* is its closest modern-day equivalent.

Though not quite so boast-worthy today, the Famicom also had a hefty list of licences and franchise endorsements. A game featuring the antics of Kiss-influenced rockers Seikima (*Seikima II*

Family BASIC. Famicom coding at your fingertips. A tape recorder was also released, allowing users to back up their precious programs

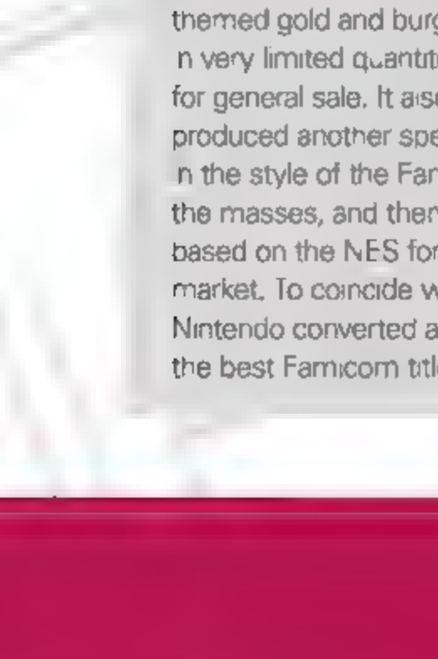
Akuma No Gyakushu), received surprising acclaim. Takeshi 'Beat' Kitano had a game designed to his specifications, and Congressman Masuzoe created a game about "intra-office politics" that "taught you the art of how to get ahead in life" – conversely, congressmen in the US more often than not try to ban videogames. A multitude of manga and anime licences were released such as *Dirty Pair* and the rather excellent *Patlabor*. Several major licences were to remain unknown outside of Japan, though, such as Master Takahashi. Having participated in and been crowned winner of Hudson's *Star Soldier* National Rally 16-Blast championship tournament, the hero of the game went on to star as the lead character in *Takahashi Meijin No Boukenjima*, and was recognised by children across Japan. Rather than setting up a similar tournament in the West, Hudson localised the game – Takahashi was changed to Master Higgins, and the game title became *Adventure Island*. Interestingly enough, the game was released in arcades as *Wonderboy*.

On the whole, the Japanese Famicom games were vastly superior to their Western-localised equivalents. Apart from the fact that only a small proportion of the available triple-A titles were brought over, nearly all of them had butchered cover art (*Mega Man*), were censored to some degree (*Ice Climber*), or suffered from the most bastardised translations ever witnessed (*Metal Gear*). The regular reinterpretation and modification of games was wholly unnecessary – stages were removed, sprites redrawn and difficulty levels changed for reasons that have never become apparent.

Lasting appeal

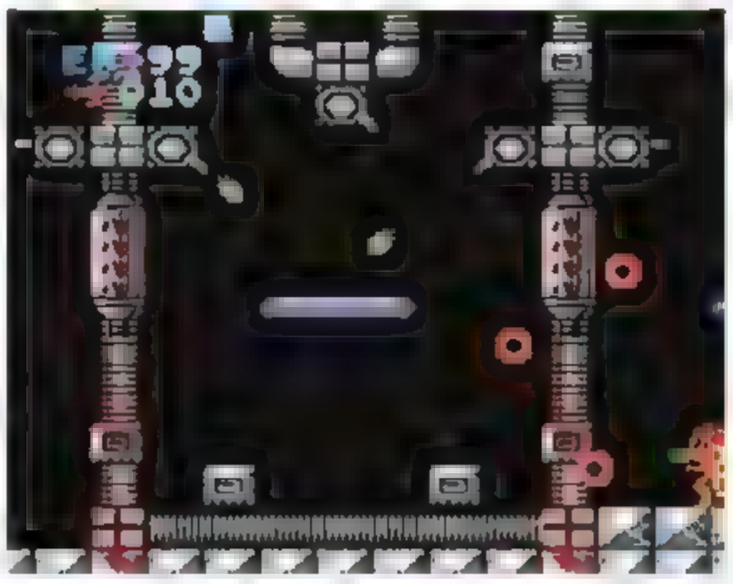
The popularity of Nintendo's first interchangeable games console is plain to see if you take a quick look at the internet – there is a vast array of dedicated fan sites, chronicling even the most obscure and bizarre facts – bootleg system designs and overclocking the processor anyone? The availability of software in the emulation scene is also very revealing – there are more emulators for the Famicom/NES than perhaps any other console or computer. The continued recognition and legacy of the Famicom has caused developers to realise that older-style games are still profitable. Many companies have recently released compilations of their past hits, such as Capcom's *Mega Man* collection and Hudson's remakes of *Adventure Island* and *Star Soldier*.

And let's not forget the three sets of Famicom Mini games released for the GBA and the system's continued life on the Wii's Virtual Console.



The Famicom's impact on console gaming is therefore obvious. Without it and the many developers who began painting their visions and dreams using it, we would have no *Metroid* or *Zelda*, no *Mario* or his rival *Sonic*, and the great *Final Fantasy* would be little more than a twinkling in Yoshitaka Amano's eye.

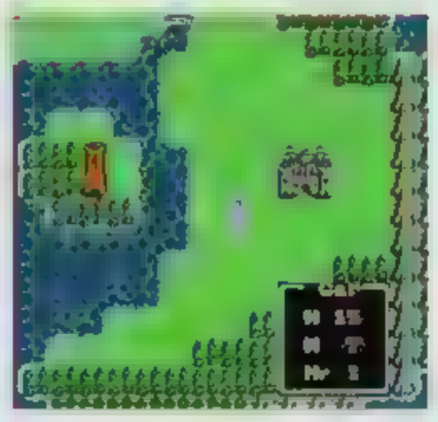
• Just some of the titles that debuted on the Famicom. From top to bottom: *The Legend Of Zelda*, *Metroid*, *Super Mario Bros*.



FAMICOM FAVOURITES

So which Famicom games did the Japanese public vote as their favourite in the *Famitsu* poll? Here are the top 40 titles.

1 Dragon Quest III
2 Super Mario Bros
3 Super Mario Bros 3
4 Final Fantasy III
5 Dragon Quest IV
6 Dragon Quest II
7 Dragon Quest I
8 The Legend Of Zelda
9 Metroid
10 Mario Bros
11 Final Fantasy I
12 Kirby
13 Kunio-Jidai Bangai-Hen
14 Kunio Sports
15 Soukoban
16 Super Mario Bros 2
17 Kunio Dodgeball
18 Final Fantasy II
19 Tetris Classic
20 Sanma No Meitantei
21 Xevious
22 Ice Climber
23 Spelunker
24 Castlevania
25 Gradius
26 Goonies
27 Captain Tsubasa
28 Konami Wai Wai World
29 Metroid
30 Takeshi No Chousenjou
31 Final Fantasy I & II
32 Portpia Renzoku Satsujin Jiken
33 Downtown Nekketsu Monogatari
34 Bomberman
35 Ganbare Goemon
36 Wizardry
37 Donkey Kong
38 Hokkaidou Rensa Satsujin
39 Pro Yakyuu Family Stadium
40 TwinBee



Leapfrogging *Mario* to the top of the poll is Enix's *Dragon Quest*.

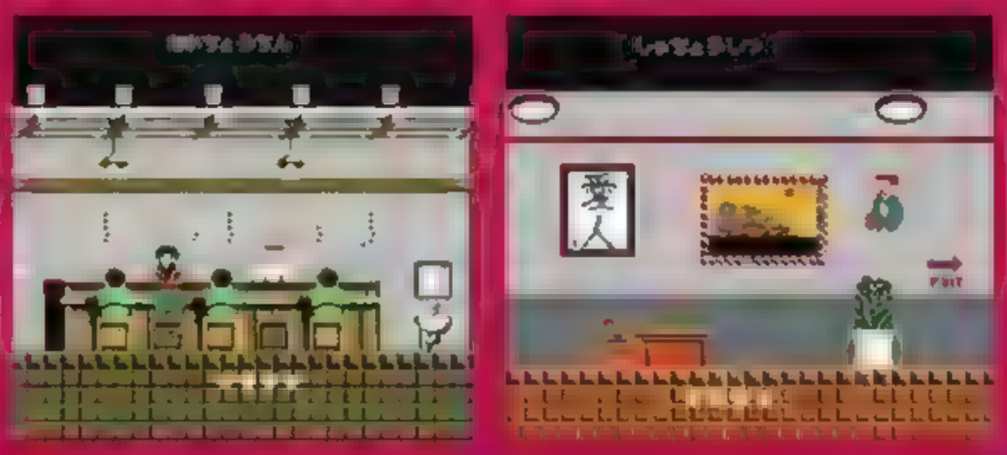
Pocket pleasure

To commemorate the end of Famicom production, Nintendo released a special edition Famicom-themed gold and burgundy GBA SP in very limited quantities, not meant for general sale. It also mass-produced another special edition SP in the style of the Famicom AV for the masses, and then a later one based on the NES for the Western market. To coincide with these, Nintendo converted and re-released the best Famicom titles as the GBA Famicom Mini series. There were three sets released consisting of ten games each, with the final set dedicated exclusively to the FDS – they were even produced on yellow cartridges that mimicked the old disks. Despite being relatively pricey (US $20 to US $30) for what are basically 20-year-old games, for the ardent collector nothing less than the full boxed set will suffice.

FAMICOM UNSUNG TOP 10

Over 1,200 titles were released so trying to whittle it down to ten of the best would be an unenviable task and some readers would no doubt be outraged that their favourite title had been left out. Instead, we're going to list what is considered to be the ten unsung greats, since virtually everyone knows the classics such as *Mario*, *Zelda*, *Contra* and *Final Fantasy*. Number order is not important – what is important is that gamers can discover some of the gems that the Famicom has to offer

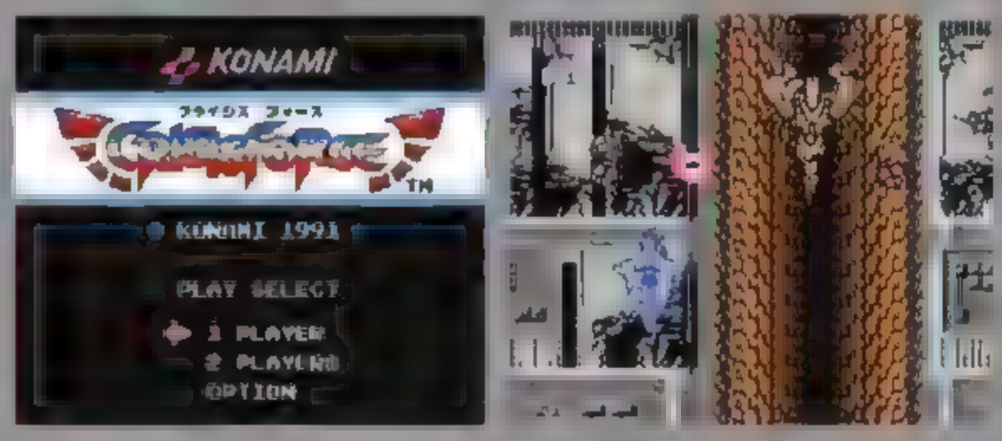
Takeshi No Chousenjou



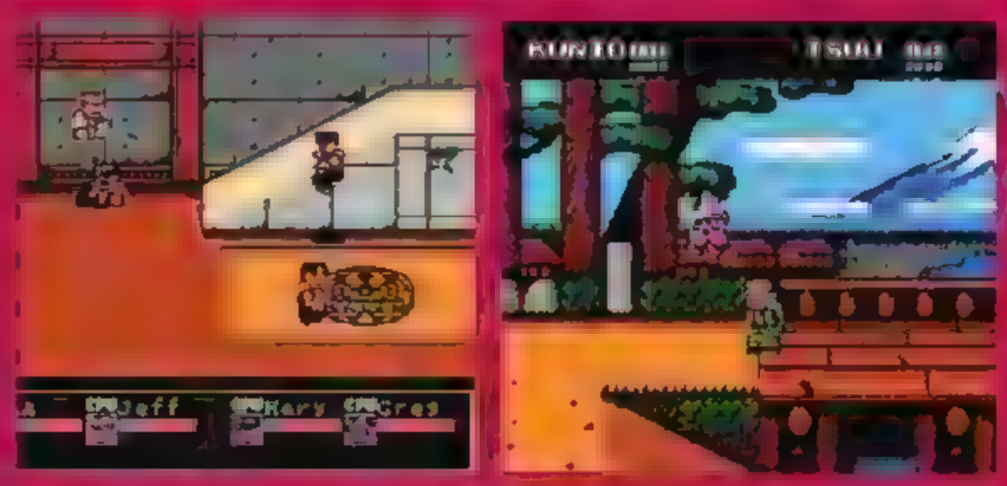
Utsurun Desu Kawauso Hawaii E Iku

Another game that tries to break away from convention, *Utsurun* has its own take on the platforming genre. When booted up it reveals two fake title screens, and later in the game the player is forced to take a blind leap of faith into a pit of spikes, only to realise that the background forms a bridge of safety. Enemies are also attacked in an unusual way: to activate the variety of moves available, the attack button has to be held down for varying lengths of time as the game cycles through each one, with the most powerful only available for a short time. But that's nothing compared to the characters, the main one of which seems to be a middle-aged man in a rubber otter suit. There are many other bizarre elements found within, all of which are wrapped in the kind of surrealism only the Japanese can get away with

Gradius Force



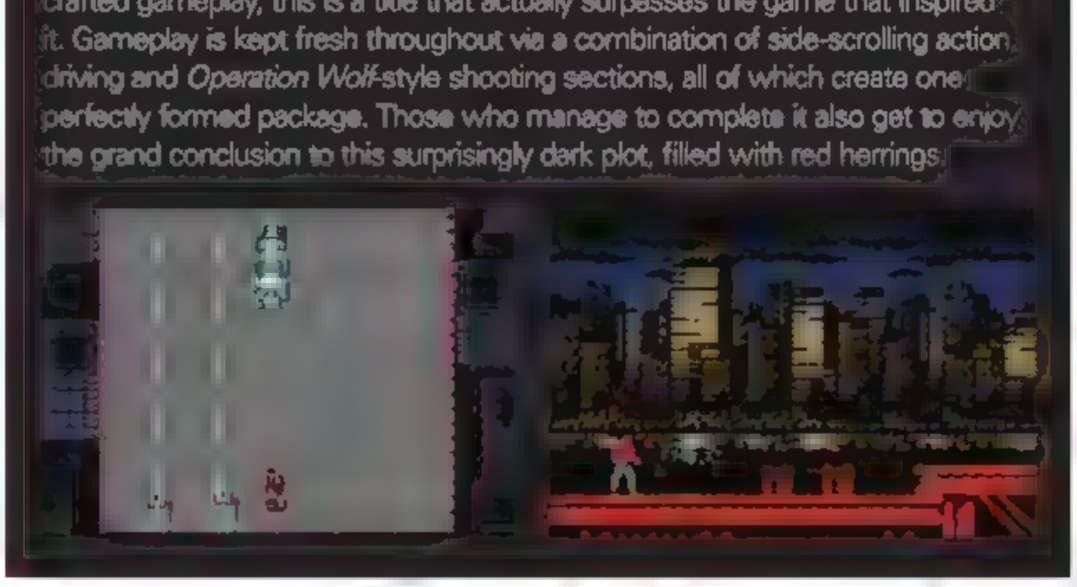
Kunio Kun series



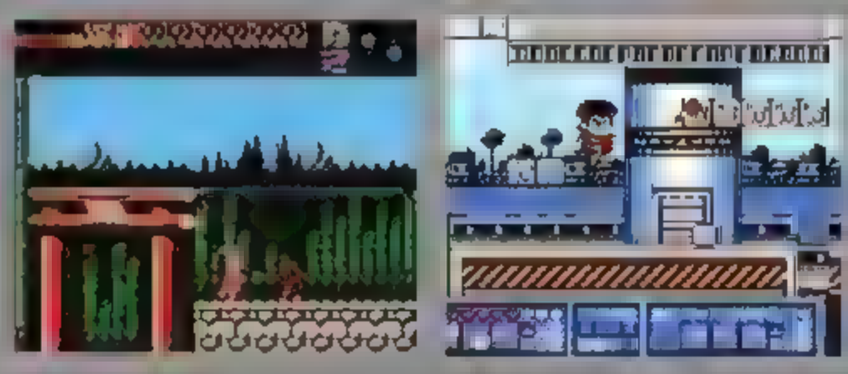
Quinty

Gun-Dec

Released in the West under the title *Vice: Project Doom*, this excellent *Ninja Gaiden* clone just has to be included. With amazing cut-scenes and flawlessly crafted gameplay, this is a title that actually surpasses the game that inspired it. Gameplay is kept fresh throughout via a combination of side-scrolling action, driving and *Operation Wolf*-style shooting sections, all of which create one perfectly formed package. Those who manage to complete it also get to enjoy the grand conclusion to this surprisingly dark plot, filled with red herrings.

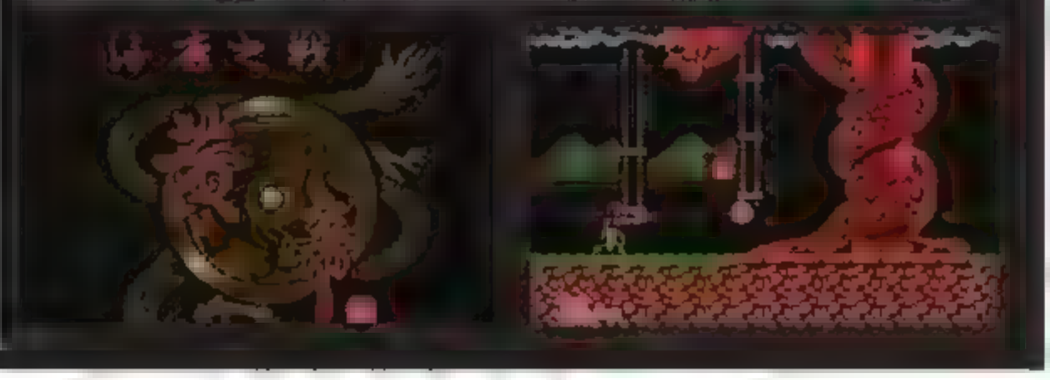


Konami Wa Wai World



Huang Di

Possibly the greatest game to come out of China during the Famicom era, *Huang Di* is as enjoyable to play as it is difficult to track down. An unlicensed bootleg-only cartridge, the game was released in limited quantities. Though it can be tentatively described as a platform action game, it's innovative in that it allows the player limitless flight and spell casting. *Huang Di* also contains some truly breathtaking levels, bosses, set pieces and cut-scenes. Flying over a village of headless warriors, traversing a fungi jungle and battling a wildcat under the moonlight are just some of the treats that players will never forget.



Sweet Home

Mother

AMSTRAD
GT 65 Monitor

Year Released: 1984

Original Price: £199 with green screen monitor, £299 with colour

Buy it now for: £10 to £25

Associated Magazines: *Amtix*, *Computing With The Amstrad* (later known as *CPC Computing*), *Amstrad Computer User* (official publication – began life as *CPC 464 User*, then *Amstrad CPC 464 User* before changing name when the 664 was introduced in 1985), *Amstrad Action*, *CPC Attack* – and a host of top fanzines, including *Artificial Intelligence*, *Better Than Life* and the biggest of them all, the serious mag *WACCI*

Why the Amstrad CPC 464 was great... You didn't just own an Amstrad CPC464 – it became an integral part of your life. It was the ace up your sleeve, to be used when someone said: "What's best, the Spectrum or C64?" You could smilingly answer: "Neither! The CPC beats them both" And it did. This underdog of a computer had a few tricks – great graphics, decent sound and so many enthusiastic users who refused to let go when the machine died. CPC owners were proud of their choice and rightly so

AMSTRAD CPC 464

IN THE EIGHTIES, GAMES WERE PRODUCED FOR THE SPECTRUM AND COMMODORE. AND, OF COURSE, THE AMSTRAD. BUT MANY PEOPLE PAID LITTLE NOTICE TO THE UNDERRATED UNDERDOG THAT WAS THE CPC 464. YET SIR ALAN SUGAR'S 8-BIT ENTRY INTO THE WORLD OF HOME MICROS NEVERTHELESS PROVED TO BE A HIT, AS DAVID CROOKES EXPLAINS

The best things come to those who wait – and with the Amstrad CPC 464, that was certainly the case. When this marvellous machine was launched on April 11, 1984, to more than 400 journalists packed into the Great Hall of London's historic Westminster School, it was commonly agreed it had its work cut out.

It was competing against the Spectrum and Commodore 64, but Alan Sugar was confident his technically superior CPC – affectionately codenamed Arnold – would win

It certainly struck a chord with the press: *The Guardian* called it Amstradivarius', *Personal Computer World* boldly said it was the Sinclair Beater', and *Computer News* referred to it as 'Arthur'

The *Grimsby Evening Telegraph* called it the 'Mean Machine', but the *London Evening Standard* went one better. "After the People's Car [the VW Beetle], the People's Computer," it gushed

Mr Sugar was planning worldwide sales of more than 20 million computers and was keen to shift an initial 100,000 that had been created prior to launch

The launch had tried to capture the imagination of journalists by using historical figures ranging from Einstein, Ravel and Archimedes to Monet and Shakespeare to highlight the various attributes of the CPC. Shakespeare, for instance, showed how easy writing *Hamlet* would have been with a word processing package

Amstrad was keen to portray the CPC – the Colour Personal Computer – as a 'jack of all trades'. Whereas the Spectrum and C64 were becoming firmly established as decent games machines, the CPC was being marketed as equally good for business

And Amstrad wanted to get the machines out in the shops by the end of June, with Bill Poel, the general manager of Amsoft, telling *Your Computer*: "I will be prepared to eat one in Trafalgar Square if it's late." He didn't have to. On June 21, the machine was made available to buy

Post-production

When the 464 Plus was scrapped, it heralded the end of this great machine. For a while, commercial companies continued to support the computer, knocking out a host of budget and full-priced titles, including the brilliant *Super Cauldron* and *Prehistorik* in 1993. But as time went on, the market was placed in the hands of hardcore users, who set up their own software companies. Among the best was Radical Software, maker of *Fluff* and *Ball Bearing*. The majority of these games were available on tape, although the brilliant *Zap T. Balls* was not, being disk-only and 128K. But as more and more games began to be released into the public domain for nothing, it became difficult for 464 users to find people willing to copy the latest homebrew titles onto cassettes unless they bought a disk drive. 464 owners found themselves shut off from many of the new wave of games, among the best being *Croco Magneto* and *Les Mings*, typically available by sending a disk and SAE

AMSTRAD CPC 464

Sir Alan Sugar, now star of BBC Two's *The Apprentice*, with more hair at the launch of the CPC 464

Roland Perry – Amstrad's group technical manager at the time of the CPC 464's launch

at Rumbelows in Edgware Road, London. Around 60 people queued for nearly an hour to get their hands on it, rushing forward when the doors finally opened at 9.30am. By 10.30am, 100 computers had been sold and software was being snapped from the shelves. It was reported that one man had even flown in from Bahrain!

Roland Perry, then Amstrad group technical manager, says: "We were pleased with this initial success. Sir Alan had wanted to create the CPC 464 because he wanted to get into the home computer market. It was the 'latest thing' that was clearly catching on as a mainstream item in the shops and we wanted to be a part of it. To see it sell was very pleasing."

Prior to the launch, Amstrad had been desperate for software, particularly games. The solution was to launch Amsoft at the beginning of 1984, tasked with approaching third-party companies to create 50 CPC games. Some of the games were given away with the CPC 464 and these included *Hamer Attack*, *The Galactic Plague*, *Roland On The Ropes*, *Fruit Machine*, *Bridge-It* and *Xanagrams*.

"Games were very important for the 464," continues Perry. "The subsequent CPC 664 and then 6128 with their disk drives started a trend towards small business use with CP/M and word processing and accounting packages, but for me the CPC 464 was 100 per cent a games machine."

The 8-bit CPC was impressive. Amstrad decided to use tapes as the storage medium because they were cheap. It was a good decision – it placed the CPC within the affordable reach of children and so the machine slowly became a strong games contender.

Although programmers wished it had hardware sprites, at the CPC's heart was a Z80 processor running at 4MHz. It had 64K of memory, a built-in tape drive – an external three-inch disk drive was available to buy later – and the choice of colour or green screen monitor.

The computer had three display modes. Mode 0 allowed 16 colours from the 27-strong palette to be shown in low resolution. Mode 1 used up to four colours from 27 in medium resolution. And mode 2 – which had the highest resolution – was able to show two colours from 27.

The 464 used the General Instruments AY-3-8912 sound chip that output in mono via a tiny, four-centimetre, built-in loudspeaker with volume control. It provided three-voice, eight-octave sound capacity. In later 464 models, stereo output was made available through a 3.5mm headphones jack, which could also be linked to external speakers.

While it didn't hit the heights of the C64, the sound capabilities were good enough to allow digital sound samples in games such as *Robin Hood* and *RoboCop*. But for the less technically savvy, the machine was striking for other reasons. Aside from the all-important joystick port, the keyboard, computer and tape deck were combined in one unit connected with just two wires to a monitor, which contained the power supply unit. The whole thing was powered by one plug in what proved to be a tidy, simple system, attractive to the public. It also kept manufacturing costs down. But the keyboard itself was more striking. Long and thin, and with the tape deck to the right of the keyboard, it had garish red, green and blue keys.

The CPC was marketed as the all-in-one solution, playing into the hands of the technophobes.

Perry says: "We wanted the keyboard to look like a 'real computer' – the sort of thing people saw at the airline check-in desk when they went on holiday. The integrated tape deck was created because Amstrad's success had been making integrated consumer electronics like the hi-fi that had nothing extra to buy and no complicated wiring. For this reason we bundled the CPC with a monitor."

Although the Z80 chip powered the CPC, Amstrad initially pondered using a 6502 processor, the same one used in Commodore's VIC-20 and in the Apple II. It was to have 32k of RAM and Microsoft's BASIC. In the end, Locomotive Software, which produced the CPC's BASIC, persuaded Amstrad to try the faster Z80 instead.

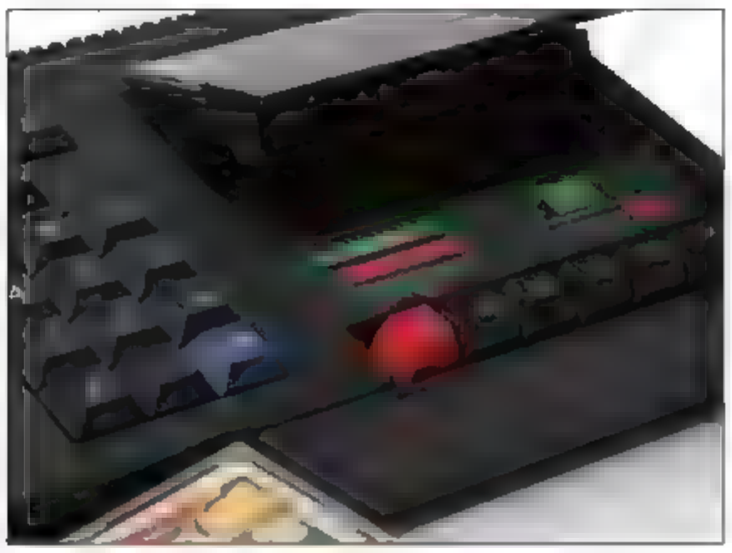
"We started the development of the Amstrad by having a basic idea and coming up with an outline spec, then filling in more details as we went along," continues Perry. "Sir Alan was pleased with the end result. Anything he didn't like we changed. I remember him wanting the cursor keys to 'work' at all times, which wasn't how people typically made BASIC interpreter interfaces at the time."

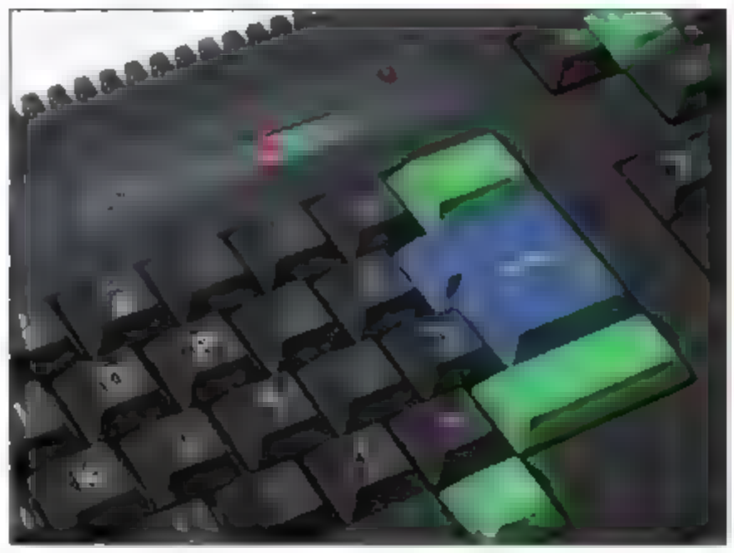
The CPC continued to pick up sales and was even making an impact in the classroom – in November 1984, Sir Keith Joseph, the minister of state for education and science, toured Thorpe Bay High School in Southend, which was the first to have 464s.

But although the 464 sold well in Britain, it became a phenomenon in Europe, particularly in France where it was the bestselling home micro. In Spain it was distributed by Indescomp as the CPC472 – it had an extra 8K of unusable RAM to get around a Spanish ruling that computers with 64K or less had to contain a tilde (~) on the keyboard. In Germany, it was sold under Schneider's name but without the coloured keys.

"We would have been happy to sell 100,000 CPCs and get into the top ten sellers," continues Perry. "But we surpassed our expectations, got to the top of the charts and sold a couple of million. Much of that was because we insisted on distributing the machine in well-known high street stores rather than solely mail order or in specialist computer stores. It was a complete system, not just a console."

Buoyant sales of the machine meant the vast majority of the major third-party software houses soon supported it. Games produced for the Spectrum and Commodore were created for the CPC, although, because the Spectrum shared the Z80 processor, many initial Amstrad games were lazy Speccy ports. Some of these games were sluggish and jerky and did not take advantage of the four and 16-colour modes nor the hardware scrolling. But when done well, the CPC





more than held its own, with colourful graphics, great sound and smooth scrolling

In 1985, the CPC had its first show, which took place in the autumn at London's Novotel. Not many games software houses turned up – neither, come to that, did Amstrad itself.

But some great games were being released – David Braben's *Elite* made an appearance that Christmas. By this point, Sugar was claiming a 25 per cent market share and he boasted that the 464 was "the machine that everyone knows and loves .. reputedly used by a well-known vacuum manufacturer to stock control his cars!"

Leading software houses were also beginning to love the CPC. Nick Alexander, of Virgin Software, which had produced *Sorcery*, said that the Amstrad version was the biggest seller of the three platforms it had made the game for. "If you compare the Amstrad with the Spectrum and C64," he said, "I think our programmers' attitude toward it is that it's superior – the leader of the pack."

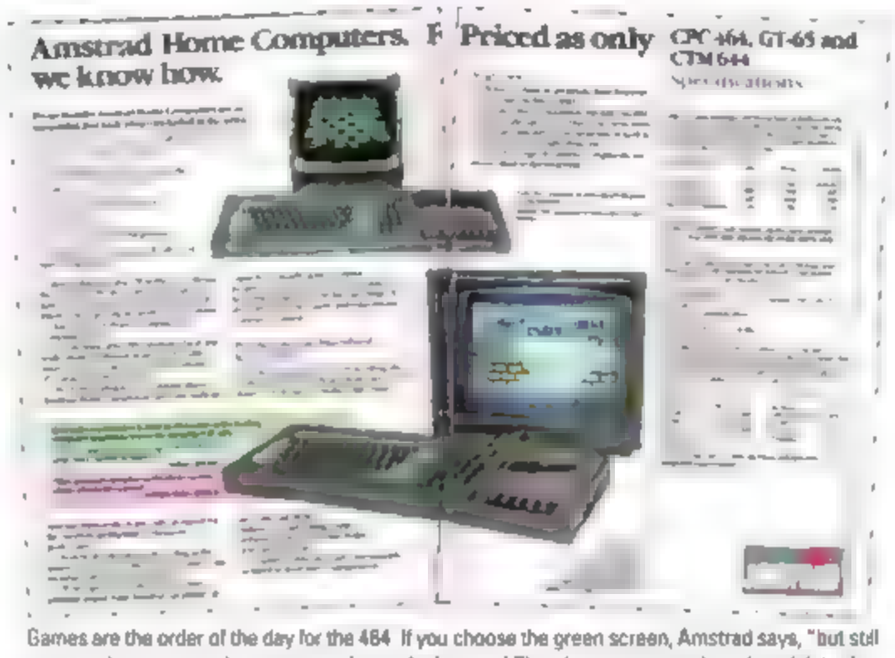
The following year, Infocom announced its acclaimed adventures, including *The Hitchhiker's Guide To The Galaxy* and *Zork I, II* and *III*, were at last being released on the CPC.

But in the same year, Amstrad bought its rival, Sinclair, and began to produce the Spectrum, prompting speculation that the CPC 464 would be discontinued. Amstrad denied it would get rid of "a machine that is making us money", though industry observers said the disk-based CPC 6128 was making more cash. But Sugar did say that the Sinclair purchase would mean the Spectrum being marketed as a games machine and the Amstrad for more serious stuff.

Such backing of the 464 by Sugar didn't quell speculation about the 464's future – by October, many software houses complained that software sales had slumped and blamed Amstrad, saying it had not produced enough 464s. Some claimed it had stopped production.

It was not the case and as the sales began to pick up again, the 464's golden era came as games were produced by the bucket load and a whole host of peripherals were created, one of the best being the Multiface 2, which allowed gamers to hack into games and input cheat codes that were printed in the mags.

Above left: *Amstrad Action* was the biggest-selling CPC magazine – at its height it sold 37,000 copies, easily beating the official *ACU*, *Amtix*, *Computing With The Amstrad* and the short-lived, six-issue *CPC Attack*. **Right:** Amstrad begins to change strategy – promoting the disk-based 6128, leaving the 464 in the background.



Games are the order of the day for the 464. If you choose the green screen, Amstrad says, "but still want to play your arcade games in colour – don't worry! There's a power supply and modulator for linking to your colour TV"

Despite rumours abounding that Amstrad would manufacture a 16-bit machine, the 464 continued. Amstrad did indeed produce a new machine in 1989, however: the flop games-based PC, the Sinclair P200. The 464 came under threat again in August 1987, when the disk-based Spectrum Plus 3 was launched, meaning that Amstrad had three machines coming in under £300 – Plus 2, Plus 3 and 464 – on sale. And in 1988, Amstrad's club for CPC owners was sold off, prompting further speculation.

Instead, the 464 was dusted off and placed into a fresh bundle, adding a TV tuner to allow users to watch television on their monitors, 17 games including *Trivial Pursuit*, *Roland In Time* and *Scalextric* – the only fun part of which was designing new tracks – as well as a desk, a clock radio and a terrible joystick. It was the all-in-one solution.

At the same time, Amstrad posted profits of more than £90 million. In 1990, the 464 ceased production – only to be replaced with the revamped 464 Plus. It was white, with greater width, similar to an Amiga or Atari ST in style, and came with a cartridge port for games that took advantage of a palette of up to 4,026 colours. The coloured keys were banished and the old cardboard edge connectors were replaced with more robust expansion ports.

The Z80A processor running at 4MHz remained, as did the 64k. But it benefited from four-channel 16-sound stereo with the addition of Direct Memory Access that allowed music to play without burdening the processor.

The old 464 refused to die, however. Groundbreaking games continued to be released – *Prince Of Persia* in the summer of 1991 looked so lush that it appeared almost identical to the Atari ST version. With fluid animation and smooth and detailed backgrounds, it was one of the best games ever released for the system.

But with the 16-bit Amiga and Atari ST becoming increasingly popular, the 8-bit technology of the CPC, no matter how spruced up with the cartridge slot, failed to attract enough punters, and although sales did rise, it was not enough to save the machine and it was finally, and sadly, discontinued.

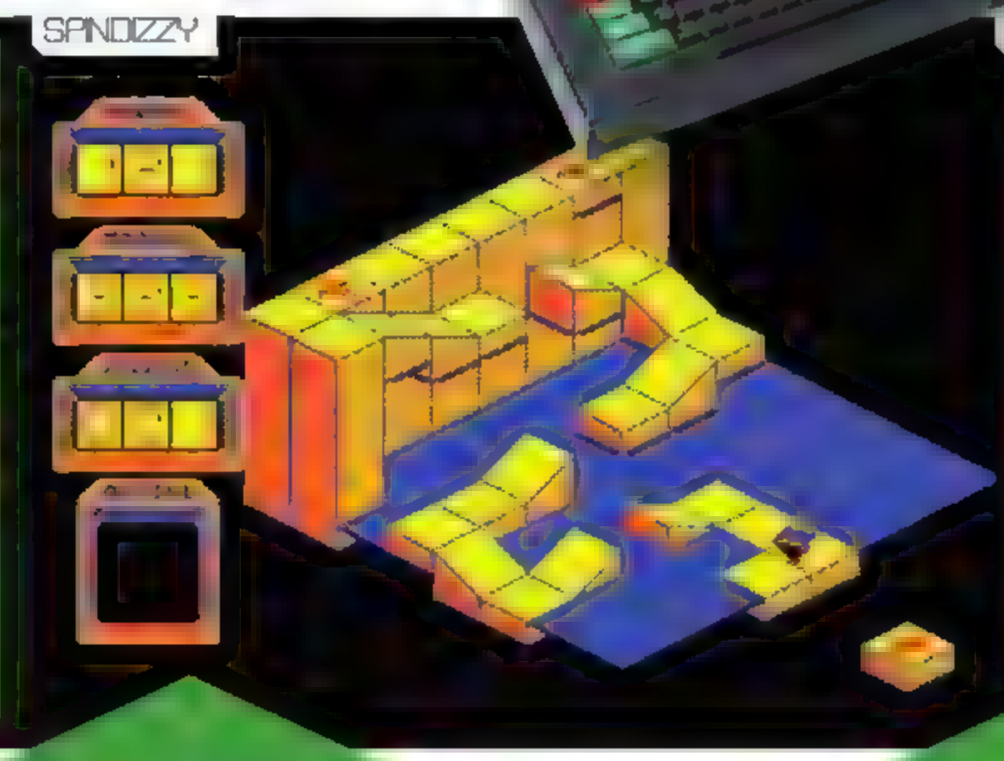
Behind the curtain

The East Germans created a CPC 464 clone called the KC Compact. It was around 95 per cent compatible with the Amstrad-made CPCs and could be connected to either a tape machine or external 5.25-inch disk drive – the CPC 664 and 6128 used three-inch disks. Although ruining the Amstrad concept of everything in one box – the KC had an external power supply, a standalone computer/keyboard and used a standard television rather than a dedicated monitor – it still ran BASIC 1.1 and had 64K of RAM, although it used a U880 processor rather than Z80. An extra 64K was added when using the tape or disk drive adapter. The machine was scrapped shortly after the Berlin wall was pulled down. Over in West Germany at the time, the 464 was being produced by Schneider, which replaced the Amstrad badge on the computer's casing and had Schneider on the boot screen – as well as proper non-cardboard expansion edge connectors.

A new case and the addition of a cartridge slot – for expensive £30 games – transformed the 464 into the 464 Plus

This French-coded game became one of the CPC's best public domain titles

PERFECT TEN GAMES



NORTH & SOUTH

RELEASED:
PUBLISHED BY: INFOG
CREATED BY: Key
BY THE SAME DEVELOPER:

North & South is a great example of what the CPC could do when it wasn't being overloaded with Spectrum ports. While Infogrames' classic strategy title obviously can't hope to match the visuals of the impressive versions, it's amazing how it captures the spirit of the original Belgian comic *Les Tuniques Bleues* which the game is based.

Fortunately the gameplay proves to be just as immersive as the striking visuals and you'll soon find yourself frantically trying to regain as much of your opponent's land as possible while you fight it out with infantry, huge cannons and even mobile forces. Excellent stuff.

THE GUILD OF THIEVES

RELEASED:
PUBLISHED BY:
CREATED BY:
BY THE SAME DEVELOPER:

There's a selection of great text adventures for the CPC, but it's the wonderful *Guild Of Thieves* we constantly return

SPINDIZZY

RELEASED:
PUBLISHED BY:
CREATED BY:
BY THE SAME DEVELOPER:

The simplest ideas are often the best and they don't get much more straightforward than the

GRYZOR

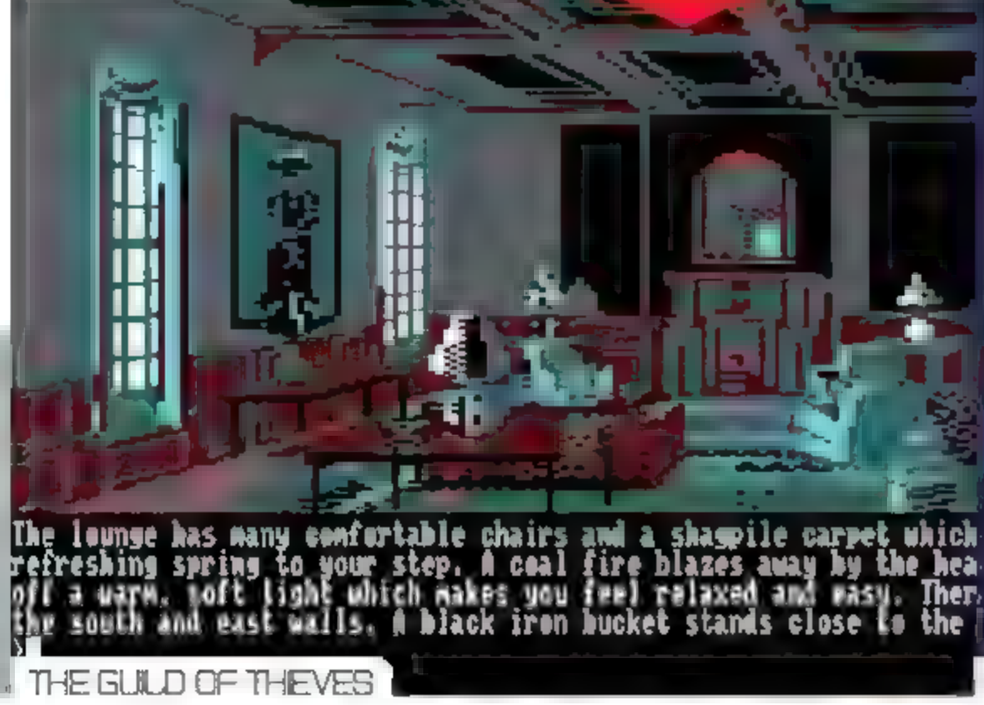
RELEASED:
PUBLISHED BY:
CREATED BY:
BY THE SAME DEVELOPER:

It's a sad fact, but most Amstrad conversions were a poor third to the often-superior Spectrum and Commodore 64 ports

TOTAL ECLIPSE

BY THE SAME DEVELOPER:

By the time *Total Eclipse* appeared in 1988, developer Incentive already had two Freescape titles under its belt. While there was nothing wrong with the sci-fi setting of *Driller* or the familiar setting of Ancient Egypt makes *Total Eclipse* far easier to relate to, it also helps that it's more technically proficient, has superior puzzles and a creepy tone that makes exploring the pyramid extremely atmospheric. A number of play mechanics were introduced and there was a tight two-hour timeframe to complete the game in, which would have been fine if the pyramid itself wasn't so confusing to navigate.



THE GUILD OF THIEVES

GRYZOR

PRINCE OF PERSIA

AMSTRAD CPC 464

It always came a poor third to the Spectrum and C64, but as the following games show, there were plenty of classics available for the 464. Before you write in, our top ten is bound to be subjective and open to violent debate, and that's what **Retro Gamer** is all about. Bring it on.

FANTASY WORLD DIZZY

GET DEXTER

PRINCE OF PERSIA

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME DEVELOPER

Prince Of Persia is quite possibly one of the most striking games to ever appear on Alan Sugar's 8-bit computer. Released in 199

FANTASY WORLD DIZZY

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME DEVELOPER

You can't feature an Amstrad top ten without at least one *Dizzy* game, so we've decided to plump for his third adventure that sees the intrepid hero exploring Fantasy World in search of girlfriend Daisy. Fantasy World is a big place, however, and Dizzy has to solve a variety of different puzzles and make his way past several ferocious enemies before he's finally reunited with his loved one. After the difficulty of *Treasure Island Dizzy*—you only got one life in *Fantasy World* is far more enjoyable to play. Throw in some superior visuals and great puzzles and it's easy to see why the lovable character remains so popular.

HEAD OVER HEELS

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME DEVELOPER

We've already featured Drummond and Ritman's classic in the Spectrum Perfect Ten Games, but we love it so much we had to include it here as well.

GET DEXTER

- RELEASED
- PUBLISHED BY
- CREATED BY
- BY THE SAME DEVELOPER

Produced by French company ERE Informatique in 1986, *Get Dexter*/*Crafton & Xunk* really showed off the CPC's power by injecting both originality and humour into the isometric adventure, easily surpassing anything that Ultimate had produced on the CPC.

Get Dexter's graphics are superbly defined and colourful with it, and your character can interact with virtually everything on screen. The playability is finely balanced between being frustratingly difficult and enormously enjoyable, the perfect learning curve.

Visually stunning, *Get Dexter* is a true CPC classic.

CHASE HQ

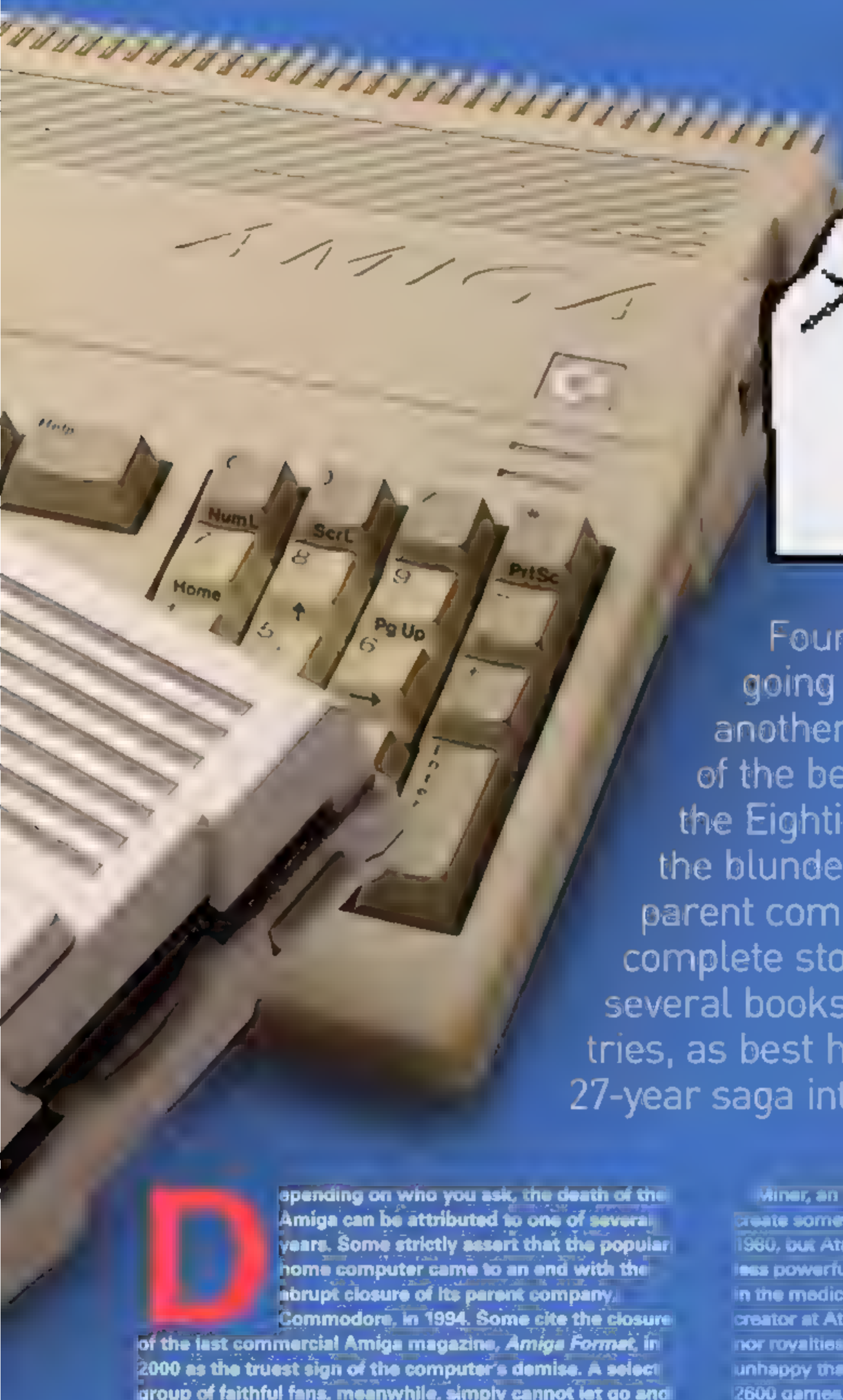
- RELEASED
- PUBLISHED BY
- CREATED BY JON O'R
- BY THE SAME DEVELOPER

On an unexpanded CPC 464, the digitised classic line delivered by your boisterous partner – "Let's Go, Mr Driver" – could not be heard. But that didn't detract from the gameplay of what was certainly a legendary CPC arcade conversion by Ocean. If there complaint about

was that it got your adrenalin pumping to the nth degree, making palms sweaty as you closed the bad guy with the clock ticking perilously close to Gam and smoke pouring from your tyres. Be graphi colourful and chunky, the particularly when pressing bo, was surprisingly fast. Hav could motion the pace, o speed the action, or this game

CHASE HQ

RETROIN[illegible]CTION



AMIGA SPECIAL

Founded in 1982 and still going today, in one way or another, Amiga created some of the best-loved computers of the Eighties and Nineties, despite the blunders of its most famous parent company, Commodore. The complete story of Amiga could fill several books, but here Ashley Day tries, as best he can, to fit the whole 27-year saga into just eight pages...

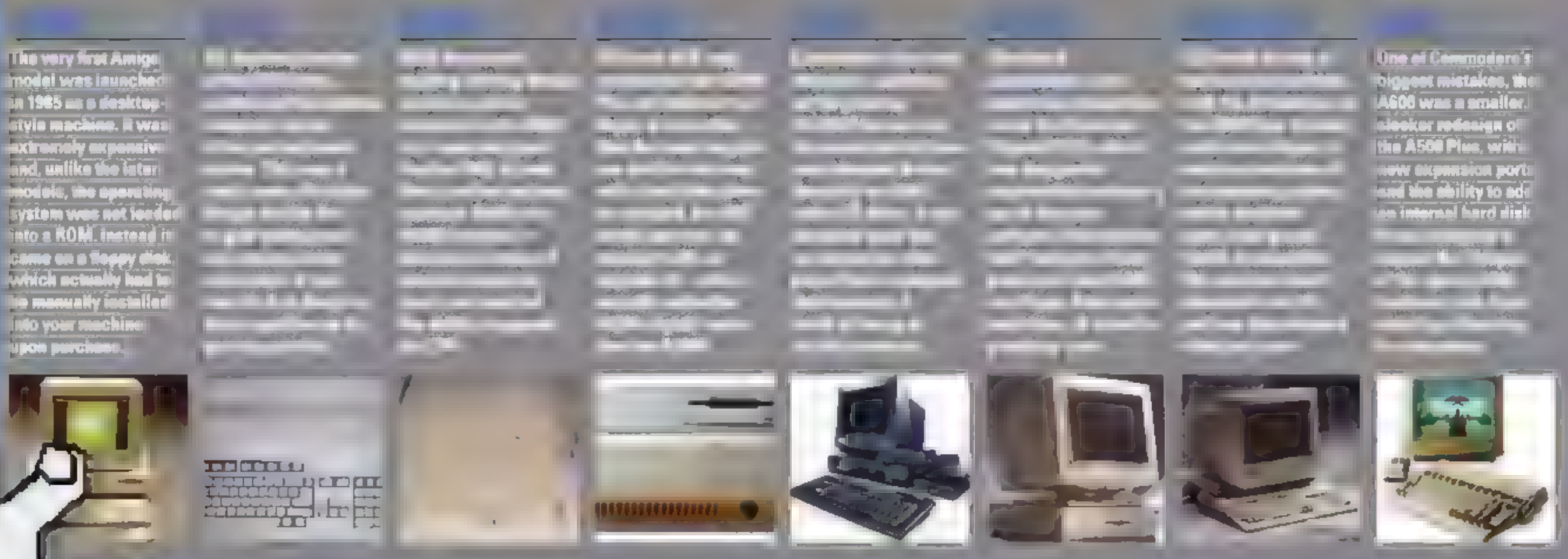
Depending on who you ask, the death of the Amiga can be attributed to one of several years. Some strictly assert that the popular home computer came to an end with the abrupt closure of its parent company, Commodore, in 1994. Some cite the closure of the last commercial Amiga magazine, *Amiga Format*, in 2000 as the truest sign of the computer's demise. A select group of faithful fans, meanwhile, simply cannot let go and would remind you that the Amiga brand itself is very much alive and well and that a new line of hardware will emerge when the time is right. Indeed, it's almost impossible to definitively say where the story of the Amiga ends, but we can definitely point to where it began.

It was the summer of 1982 and, as with many great business ventures, the genesis of the Amiga was about to start with a phone call. On the dialling end was Larry Kaplan, ex-Atari programmer and founding member of Activision. Picking up at his end was Jay Miner, the design guru behind the Atari 400 and 2600 VCS. Both men had achieved great things in the games industry, but both felt as though their abilities had been held back by a lack of vision from their respective managers.

Miner, an ambitious hardware designer, had been eager to create something using the new Motorola 68000 processor in 1980, but Atari was much more keen on working with cheaper, less powerful chips, like the 6502. And so he left to work in the medical industry. Kaplan, likewise, had been a game creator at Atari but was dispirited from receiving neither credit nor royalties. In 1979 he had left to form Activision but was unhappy that he was still essentially a programmer of Atari 2600 games, and therefore still lining the pockets of his former employer, albeit indirectly.

Kaplan had been approached by a consortium of investors – a Texas oil baron and three dentists – looking to plant $7 million into a new videogame company, and proposed to Miner that the two work together in the production of a new games console. He had seen the NES at CES of June 82 and believed that he could create something much better. His plan was to produce exclusive games for the system, while Miner would design the hardware. Miner agreed and the new company, then named Hi-Toro, was soon established in Santa Clara, California, along with former Tonka Toys marketing man, David Morse, who came on board as general manager. Things were off to a good start but, before the year was out, Hi-Toro was hit by one

VARIATIONS



The very first Amiga model was launched in 1985 as a desktop-style machine. It was extremely expensive and, unlike the later models, the operating system was not loaded into a ROM. Instead it came on a floppy disk which actually had to be manually installed into your machine upon purchase.

One of Commodore's biggest mistakes, the A600 was a smaller, sleeker redesign of the A500 Plus, with new expansion ports and the ability to add an internal hard disk.

The 2600 games were completed in 1983, just in time for the videogames crash

of the many setbacks that would eventually come to define the Amiga's history. Looking to expand the business in a credible way, Morse asked Kaplan if he would approach Atari founder Nolan Bushnell about becoming chairman of the board. Upon the meeting, Bushnell instead convinced Kaplan to leave, saying that the two would make more money if they started their own project. Sadly Bushnell soon lost interest, and a jobless Kaplan was forced to go back to Atari and ask for work, while Miner was left wondering what to do about Hi-Toro.

Moving into Kaplan's position of chief engineer, Miner found himself at the helm of Hi-Toro and took the opportunity to push it in his own favoured direction. Where once his bosses at Atari had denied him the opportunity to use the 68000 processor, he now had the freedom to build it into his new machine, which he wanted to be a full personal computer. Hi-Toro's investors disagreed, however, and insisted that the new machine remain a games console. Miner went along with their plan but surreptitiously built expansion ports into the console so that it could be modified into a computer later on.

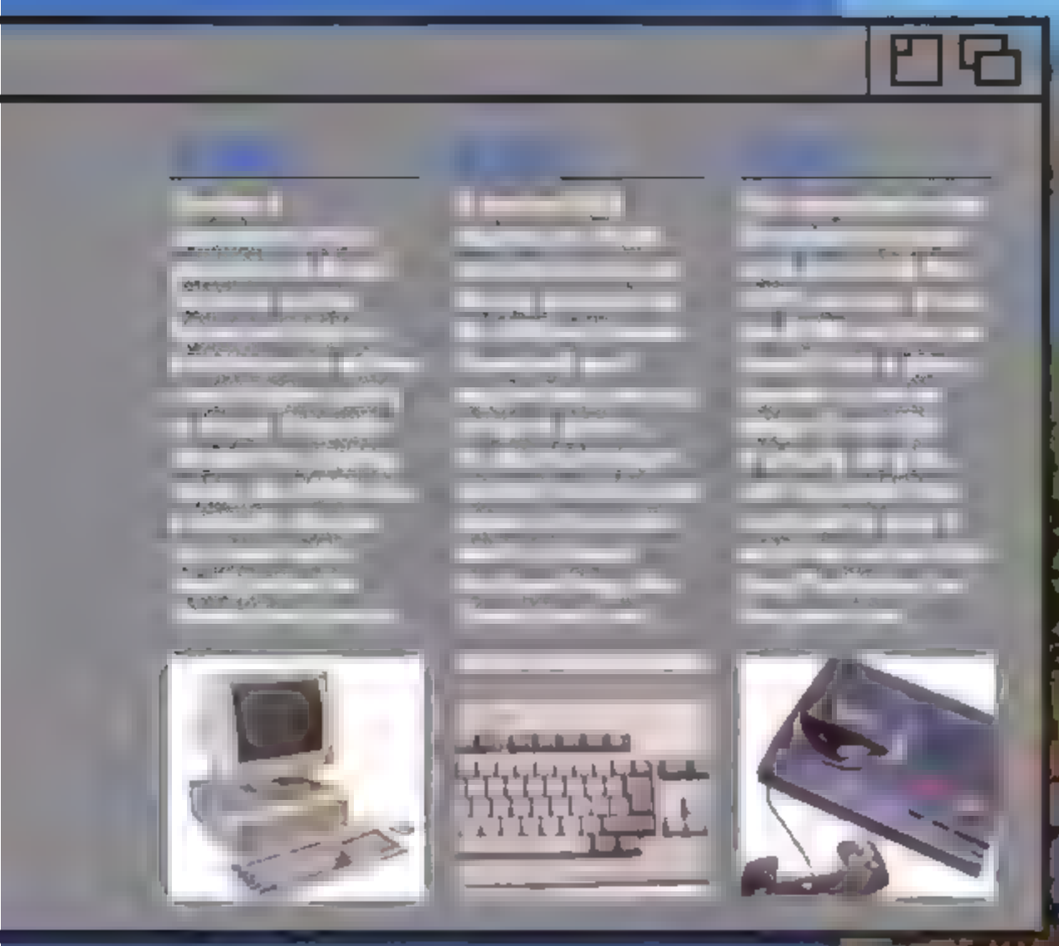
In order to keep the company ticking over while working on its new console, a part of Hi-Toro split off into a subdivision to work on Atari 2600 games that could be released quickly for a fast and reliable source of income. Under the trading name of Amiga, used because Toro belonged to a Japanese gardening technologies firm, the company produced three games for the 2600 as well as a controller called the Joyboard, which was used by standing on it and leaning from side to side.

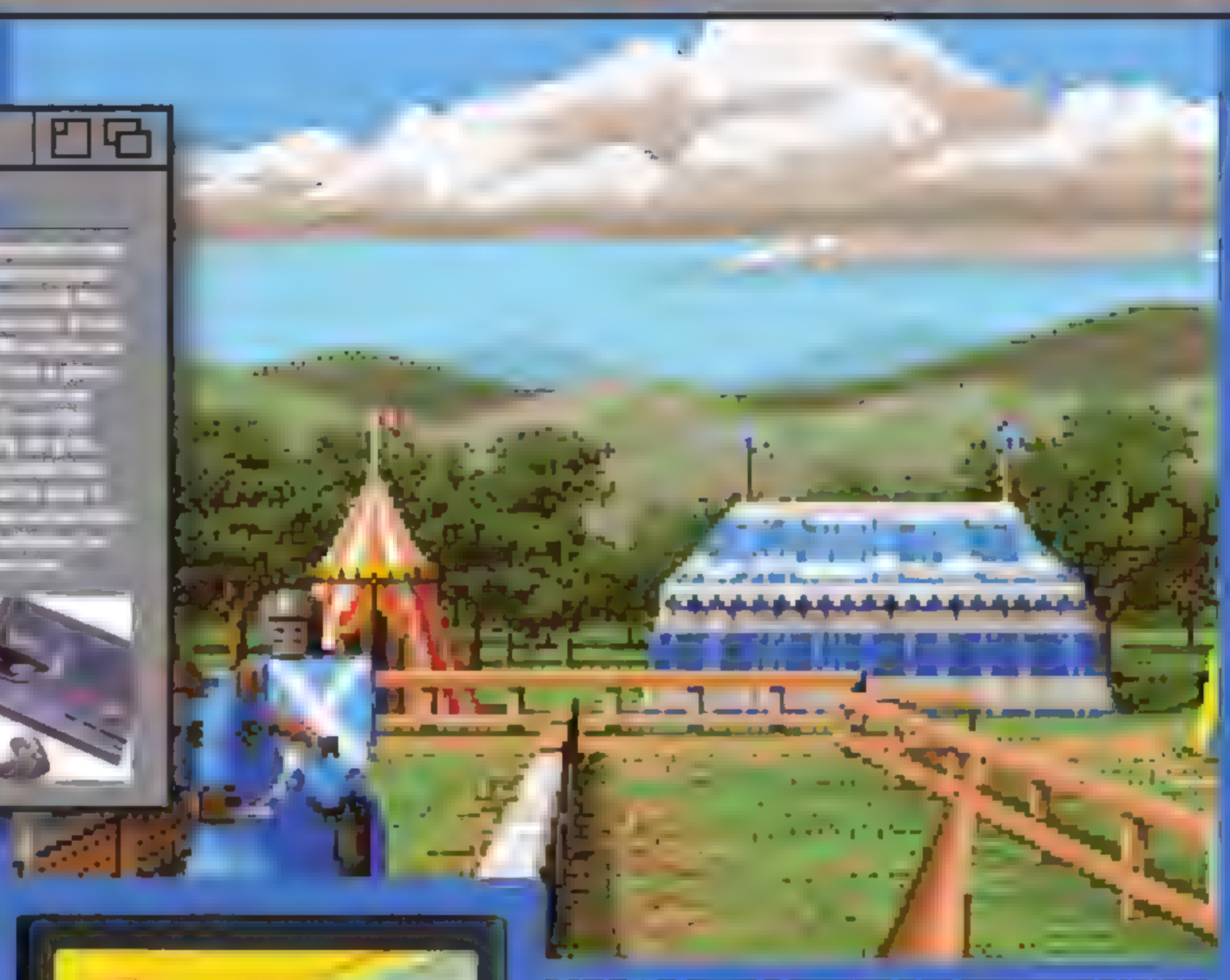
The 2600 games were completed in 1983, just in time for the videogames crash to sweep the Atari market from under Amiga's feet. Very few of its games ever made it to the shelves, which dealt a severe blow to the company's finances but, ironically enough, it came as welcome news to Miner. With the American console market now considered dead by the industry and retailers alike, it would have been suicide to develop a new games machine – especially one as expensive as a 68000-based model would have been.

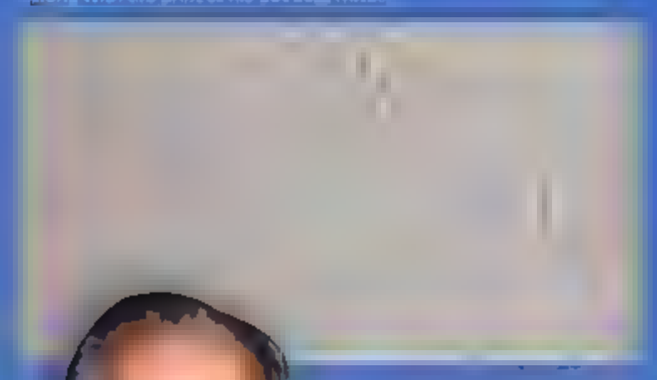
With Amiga and its investors finally singing from the same hymn sheet, Miner forged on with his computer prototype, now codenamed Lorraine, and the initial test model was completed in September 1983. Built from several bread-board sized PCBs wired together, Lorraine appeared to be something of a monster. But to those who understood computing, she was a thing of beauty. Not only did the computer feature the super-fast 68000, but it also used three custom chips – dubbed Agnus, Denise and Paula – that would regulate and control different functions of the machine, cleverly taking a lot of strain away from the processor and RAM.

The way in which modern computers use graphics cards, sound cards and all number of dedicated processors is somewhat similar to what Amiga was doing for the first time in 1983, so it was clear that Miner's vision was an innovative one. And these innovations were not limited to just hardware either. As a personal computer, rather than a games console, Lorraine would need an operating system – and it found one with Intuition, a clever little user interface designed by ex-Williams arcade engineer RJ Mical.

Later known as Workbench, Intuition was one of the first graphical user interfaces ever released for commercial purposes, following the 1984 release of Macintosh's Desktop in just under a year. Astonishingly simple to use, Workbench took commands that would previously have been made in text prompts and translated them in to visual signs that anyone could understand. With files and programs stored in drawers that opened and closed when you clicked on them, and a high-contrast colour display that remained visible on even the







Lowering the clock speed just a little so that video mixing was easier, and having a copper-list that could do amazing things with a screen display. That's something that is only just getting there in Windows Vista if you ask me."

At CES itself, the Boing Ball demo caught the eye of executives at Atari, who saw the potential in Miner and Mical's work and offered to buy one million shares in the company for $3 each. This generous offer wasn't quite the windfall that Amiga needed, however. Atari was actually only interested in the custom chips that Miner had produced and had no intention of developing a saleable Amiga machine. Furthermore, it was willing to play dirty to get what it wanted at a bargain price. Atari loaned Amiga $500,000, knowing full well that they could not afford to pay it back, and delayed the paperwork on the buyout until the debt became an issue and cunningly reduced its offer to 98 cents per share to compensate for the debt it had manipulated Amiga into accruing.

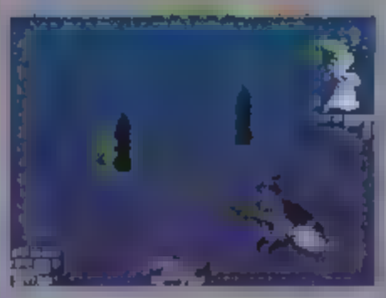
In the face of such a sour deal, all hope seemed lost for Miner's dream machine. That was until Atari's biggest rival, Commodore, swooped in to save the day. The 30-year-old computing firm was currently enjoying phenomenal success thanks to the VIC-20 and C64 and was looking for a new machine that could continue the plan outlined by founder Jack Tramiel with his famous phrase: "Computers for the masses, not the classes". Ironically enough, Tramiel had quit Commodore that very month, but the vision for Amiga fell right in line with his philosophy nonetheless. Commodore paid off Atari with $1 million, which was double the amount of Amiga's debt and enough to free the company from Atari's demands. It then bought Miner's whole operation for $4.24 per share and set about making the Amiga computer a reality.

By 1985, the Amiga finally became something that ordinary people could see, try, buy and actually take home. With the custom chipset breadboards reduced down into a single desktop casing and with a keyboard, monitor and a mouse added, the Amiga 1000 was born. It was first publicly shown on 23 July 1985 at the Lincoln Centre in New York and it made a huge splash with the media as Commodore used its marketing

cheapest TVs, Workbench was a crucial element in Amiga's bid for mainstream appeal.

Before Amiga could reach for that success, however, it first had to convince investors, so that the machine could gain enough money to go into mass production. That's where the computer's official unveiling, at the January 1984 Consumer Electronics Show, came in. For the show, Mical coded a demo animation designed to wow attendees and show just what the computer was capable of. That demo was the now famous Boing Ball – a white and red chequered ball with realistic spherical effects that bounced around on the screen, alternating the direction of its rotations while Workbench continued to function as normal in the background. The demo was so well received that it eventually became synonymous with the Amiga itself. The chequered ball was even incorporated into the official Amiga logo, post-Commodore. Mike Dailly, creator of *Lemmings*, remembers why the machine seemed so exciting at the time: "The Amiga OS was an amazing system, and the hardware incredibly well thought out," he says. "The little tricks the hardware guys added, like

THE GAMES

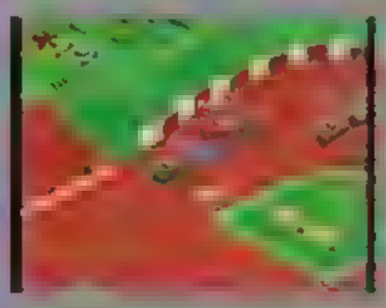


Best... Platformer

In comparison to the Mega Drive and SNES, the Amiga didn't really have a platform game that came anywhere close to brilliant. The joystick controllers didn't help and neither did the lack of Japanese talent. Still, that didn't stop the Europeans from giving it a go and one of the best efforts was this quirky release from Team17. Featuring bold, colourful visuals and fluid controls, it played a good platformer game and had one of the most memorable mascots on the system.

Best... Shoot-em-up

Released very late in the Amiga's life, this New Zealand-developed shooter took the Amiga into the realms of 3D in ways it had never done [illegible] gameplay itself was like a 3D version of *Defender* and just as fun as that sounds.



Best... Racer

Another late bloomer – and from the same developer as *Guardian* – *Super Skidmarks* took the *Super Off Road* style and made it its own. Tiny polygonal cars, tons of competitors, arcadey handling and a real sense of humour all made *Super Skidmarks* a pleasure to play and one of the best post-Commodore games on the system. One of its best features was the multiplayer support – one mode allowed four people to play in team while another allowed three to race each other via a split-screen.

Best... Arcade Action

This one's a close call thanks to the excellent *Chaos Engine*, but *Alien Breed Tower Assault* wins out due to being that little bit easier. Team17 made loads of versions of *Alien Breed* for the Amiga and this was the best by far thanks to its multiple routes that delivered a huge variety of locations and challenges, as well as the cool ability to walk backwards while firing. This was essential run-up action. Look out for the new *Alien Breed* on Xbox Live Arcade.

Best... Adventure

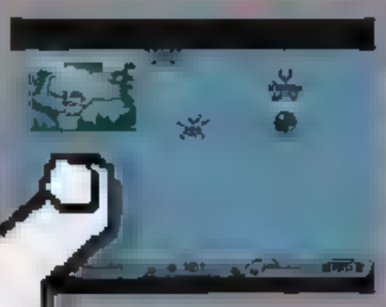
Okay, so it's arguably as much a PC game as an Amiga release, but we're going to let this one count. Almost every Amiga owner had a copy of this LucasArts classic back in the day and suffered swapping through the 12 disks every time just to spend a few hours emerged in the world of Guybrush Threepwood. Why? Because it was the funniest, best looking, best sounding and most mind-boggling adventure around. And it probably still is, actually.

Best... RPG

[illegible]

Best... Puzzler

Do we really need to explain why *Lemmings* was the best Amiga puzzle game? It's been converted to almost every format on the planet and has been played by every gamer and his mum. Its masterstroke was to combine fiendish yet enjoyable puzzles with characters and [illegible] so lovable that no one could resist playing. If it wasn't for the existence of *Tetris* then *Lemmings* would be the greatest puzzler of all time, regardless of format.



Best... Sports

Okay, it's not a real sport, but that's what made *Speedball* so special. [illegible] level playing field. So to speak. And it didn't rely on realism to succeed, which meant that you could have wild gameplay and a clever scoring system that other sports games didn't offer at the time. It also had lots and lots of violence, of course, which definitely helped endear it to the gamers of the time.

clout and deep
pockets to wheel out
Debbie Harry and Andy Warhol to
promote the new hardware.

The Amiga 1000 was commercially launched a few short months later, in September, but it was yet to fulfil its destiny as the ordinary family's computer of choice. Suffering some production problems, Commodore was able to manufacture only fifty A1000s by November and none of these were ever released to the public and were instead used internally. A few machines managed to make their way onto store shelves by Christmas, but few people were even aware of the machine's existence and it failed to sell in significant numbers. This trend continued throughout 1986 as a series of shoddy and vague adverts failed to convince anyone of the A1000's worth, despite the fact that it was much more capable than the IBM PCs and Apple Macs of the time. At $1,295, it was cheaper too. But without any killer apps that affordability counted for little, and the A1000 sold only 35,000 units during 1986.

For gamers, however, that killer app soon hit in the form of Cinemaware's *Defender Of The Crown*. Looking far more advanced than any other home computer game could ever hope, it was the first piece of Amiga software with the power to make gamers lust after the computer until they could afford to buy one. Sadly, however, that affordable $1,295 price tag was actually an expensive one for gamers who were more accustomed to the cheaper machines like the Commodore 64 and Atari 800. The Amiga 1000 was way out of the league of the average consumer.

Thankfully, Commodore was already on the case and soon followed the A1000 machine with a cut-down model that was intended for home use. Released in 1987, this new version was named the Amiga 500 – a phenomenally popular computer that remains the bestselling Amiga variation to date. With the whole Amiga computer squeezed inside a keyboard casing and the ability to use your own TV set rather than an expensive bundled monitor, the A500 weighed in at a much more attractive $599. The hardware had been developed by internal staff at Commodore, rather than Miner's original team, because the then Commodore CEO believed the new team would be more 'bloodthirsty'. This was a trend that would continue throughout the Amiga's life, with many machines designed and prototyped by competing factions of Commodore in order to promote innovation through an encouraged sense of competition.

The strategy worked. The Amiga 500 was a great computer and a popular one with consumers. Commodore couldn't take the whole credit, however. Much of the Amiga's emerging popularity could be attributed to unexpected support from Electronic Arts. Then led by Trip Hawkins, EA had pledged to develop the best possible games for Amiga, just as it had with C64. But it was EA's first release, actually a piece of software rather than a game, that proved to be the most important. That software was Deluxe Paint, an extremely innovative and user-friendly digital paint/animation package that was widely adopted by other games developers and became instrumental in creating amazing-looking games for the 16-bit computer. Some of the best UK developers around – big names like Sensible Software, Bullfrog and The Bitmap Brothers – all moved onto Amiga in 1987 and began churning out incredible new games that would make the A500 the must-have system of its time. Martyn Brown, who founded Amiga specialist Team17 in 1990, outlines why the computer was so attractive to developers: "The Amiga offered a tremendous level playing field to the casual/small developer," he explains. "There were no license fees, no dev kit, no enormous resources required. Because of this, people were able to develop what they wanted and how they wanted, leading to a lot of creativity but with far better results than in the previous generation."

> **"Amiga offered a tremendous level playing field to the casual developer"**
> MARTYN BROWN, FOUNDER OF TEAM17

The year of 1987 was indeed a defining one for the Amiga, but it was also the year in which the first act of the company's story truly came to a close. Seeking more control over the company, Commodore chose to close down Amiga's offices in Los Gatos and move all of the staff to its own HQ in West Chester, Pennsylvania. Many of Amiga's biggest names declined to move and chose to separate from the company they had helped nurture. RJ Mical was one of the first to go, choosing instead to become an independent Amiga software contractor. Jay Miner left too, though he did maintain a role as a Commodore consultant for the remainder of the company's existence. From here on out the Amiga's fate was wholly in the hands of Commodore. For better or worse.

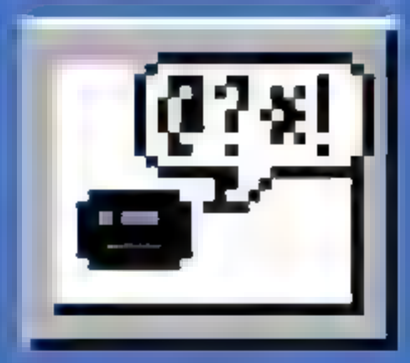
One of Commodore's better decisions was to operate the Amiga business on two tiers. Each hardware iteration would be produced in both affordable home and expensive professional variations. This began with the dual release of the Amiga 500 and the Amiga 2000, and was a great way to maximise the sales of one single technological standard by appealing to two very different markets at once. Its other major advantage, perhaps through tradition rather than considered intention, however, was to keep the Amiga as an 'open' platform. This meant that any developer could create, produce and sell software for the machine without having to gain a licence from Commodore and without having to buy into a proprietary media. This proved extremely useful to games developers at the time, especially as competing games machines like the NES and Mega Drive required both a licence and expensive cartridges from the platform holder. Self-publishing was simply out of the question on consoles, but on the Amiga it was a gloriously attainable reality.

The ease with which developers could produce games for the Amiga meant that it soon amassed a gigantic catalogue of software that could thrive on the market, regardless of Commodore's actions. It was probably for the best, really, as the company soon began a decision-making process that would eventually lead to its own downfall. Though the twin guns of Amiga models 500 and 2000 had proved popular, there was one voice of dissent and, ironically enough, this voice came from Jay Miner, who advised A1000 owners not to upgrade. He believed that the 2000 didn't represent a significant enough improvement on the 1000 and was embarrassingly out of step with general computing standards by the time of its delayed release.

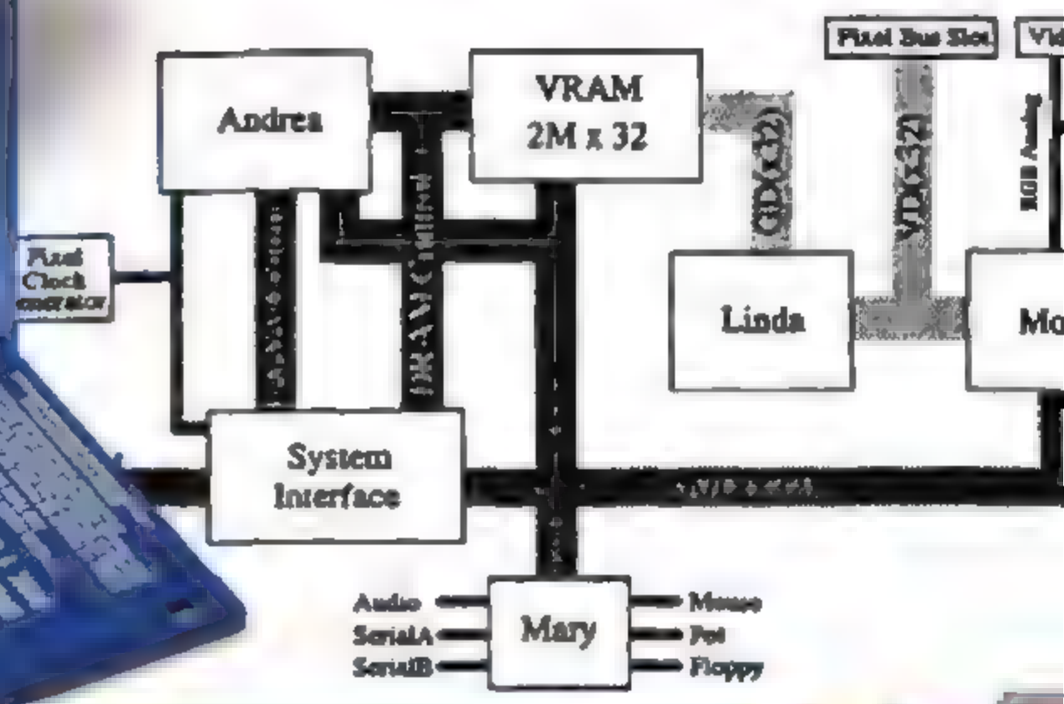
Amiga's ability to move with the times continued to diminish over the years, despite the best of intentions. The A500 had admittedly spawned and maintained a huge videogame industry, and the A2000 had proved extremely popular in the animation industry, most notably on the *Babylon 5* and *RoboCop* TV series. But that couldn't last forever. Commodore was aware of this and quickly moved to create new hardware, but unfortunately the new machines it chose to make were poorly thought out.

The Amiga 1500, a UK-only model, contributed nothing to the format's future, while the CDTV, an early multimedia box worthy of its own in-depth feature, was too far ahead of its time and so poorly marketed that it went unnoticed by the general public. A more worthwhile stab at self-improvement came with the Enhanced Chipset found in the A500+ and A3000 but, again, this was far from the major leap in power that was needed when Microsoft's Windows 3.1 was just a

Commodore's proposed new Amiga, called the A1200, appeared on the front cover of CU Amiga and led many to believe that the format would make a strong comeback after the fall of Commodore. It never quite worked out, however.



ALIEN BREED
COMMODORE AMIGA 500
THE NEW COMPUTER GENERATION
Commodore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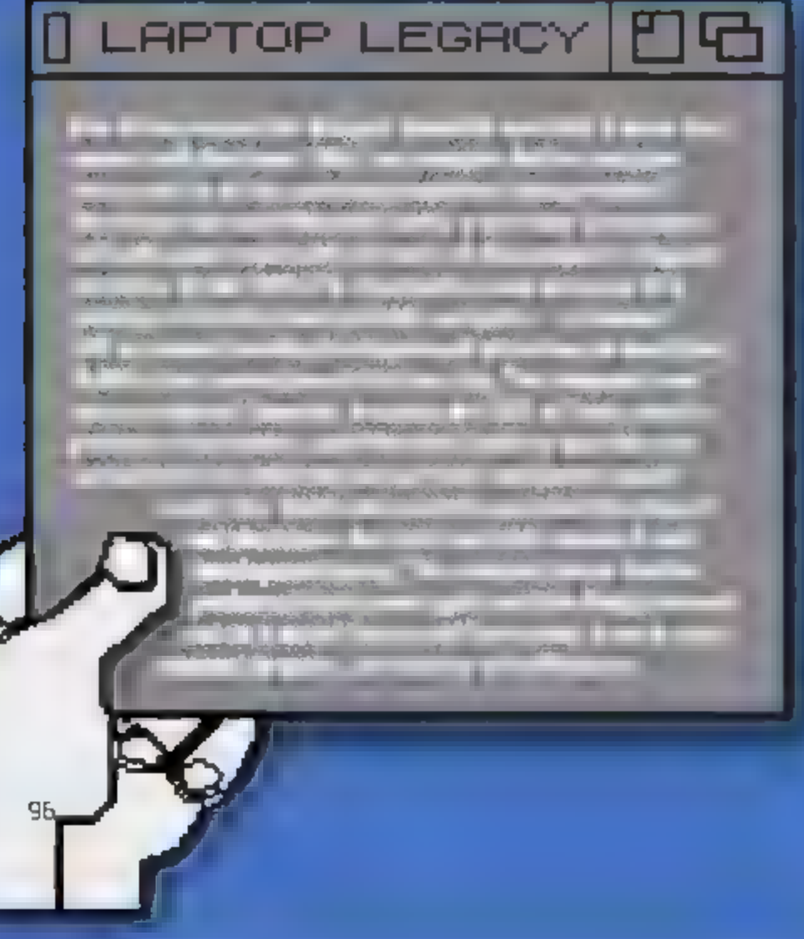

LAPTOP LEGACY

IMPORTANT DEVELOPERS

ATARI ST

IT WAS THE MACHINE THAT SINGLE-HANDEDLY REVIVED THE FORTUNES OF AN INDUSTRY VETERAN. DAMIEN MCFERRAN SPEAKS TO THE MAN RESPONSIBLE FOR MASTERMINDING THE GREATEST COMEBACK SINCE LAZARUS

Following the videogame crash of the early Eighties, Atari was in horrifying shape. The company's failure to successfully build on the triumph of its popular 2600 console – a machine languishing in obsolescence by this point – coupled with a generally poor quality of software available had triggered a catastrophic meltdown that very nearly destroyed the entire videogame industry. After the dust had settled, Atari's parent corporation Time Warner had incurred a cataclysmic $500 million loss and was predictably keen to offload its flagging games division. What occurred next has gone down in videogame folklore as one of the most startling turnarounds in the history of the medium.

INSTANT EXPERT

Recording artists that have used the ST include Fatboy Slim, Mike Oldfield, UK one-hit wonder White Town and French knob-twiddler Jean Michel Jarre.

The machine was amazingly popular in Germany, where it was used predominantly for desktop publishing and CAD

The ST was the first home computer to feature built-in MIDI ports

Released in 1986, the 1040 ST variant was the first personal computer to include 1MB of RAM. When the price dropped to $999 it famously became the first computer to break the $1,000/megabyte price barrier

One early tagline for Atari's ST range was 'Power without the price'

Jack Tramiel included the Hebrew alphabet with ST's ROM character set to respectfully acknowledge his Jewish heritage

Because the Atari ST hardware does not support scrolling, many games used large borders or frames around the playfield to reduce the amount of data that needs to be copied.

The last major gaming release for the platform was David Braben's *Frontier: Elite II*, published in 1994.

FTL's seminal real-time RPG *Dungeon Master* made its debut on the Atari ST

The ST is home to what is arguably the world's first multiplayer first-person shooter *MIDI Maze* used the ST's MIDI ports to permit up to 15 players to duke it out in a rudimentary 3D maze.

Trading Places

Ironically, the man behind the product that would resurrect the ailing Atari brand had previously been instrumental in sullying the fortunes of the company. Shiraz Shivji worked at rival Commodore during the early Eighties and helped build the C64 – the home computer that stole away vital market share from Atari's 400 and 800 range, as well as its 2600 console. "I became interested in electronics from my early childhood in Tanzania and my education in the UK," says Shiraz, when asked about how he became entangled in the fabric of Atari's history. "I attended the University of Southampton and obtained a first-class honours degree and then moved to Stanford University in the US to pursue a PhD in electronics. I was granted a master's and passed the qualifying exam but left before obtaining my degree as I was running out of funds. I started working in Silicon Valley and obtained experience in hardware and software." By 1984 Shiraz had risen to the role of director of engineering at Commodore and it was at this point that fate intervened.

Although Commodore was undoubtedly causing Atari some serious headaches, things weren't exactly harmonious in the boardroom. "Jack Tramiel was president and CEO of Commodore and Irving Gould was the chairman," explains Shiraz. "Irving was the largest shareholder and Jack was the second largest. In January 1984 there was a showdown between the two of them over the role of Jack's sons at Commodore." Polish-born Tramiel had founded the company in the Fifties after enduring a particularly difficult early life – he was interned in Auschwitz concentration camp for five years during World War II – so his insistence on 'keeping it in the family' is understandable. However, Irving refused to budge and this forced Tramiel's hand. He called a board meeting and tendered his resignation. "I was tremendously disappointed and shocked at this decision," remembers Shiraz.

However, it wasn't long before the two men were reunited. "I soon met with Jack and discussed the possibility of joining him if he was to start a personal computer company," recalls Shiraz. "There were a number of senior execs at Commodore with experience in finance, manufacturing, design, engineering, marketing and sales that felt the same way, so I told Jack he could count on a core team to start a company. At this time Warner Communications was thinking of selling or disposing of Atari as it was losing a lot of money. Jack made an offer for the company by injecting $30 million – $25m from himself and $5m from associates, such as myself. Eventually the deal was struck and that is how I came to be the vice president of advanced development at Atari."

Rising To The Challenge

Having switched sides in dramatic fashion, Tramiel had a new company to command in the shape of Atari Incorporated. He now needed a product that would get the firm back on its feet. Thankfully Shiraz and his team already had ideas forming. "The core team of engineers and developers were thinking of the next personal computer," Shiraz says. "The work on the ST didn't really start until Atari was actually purchased, but the main ideas of using a 32-bit processor as well as support for music and graphics were already important for us."

Shiraz duly started work on the new project codenamed 'Rock Bottom Price', or 'RBP' for short – an indication of Tramiel's desire to produce a cheap yet powerful home computer. "We moved everyone into the Atari facilities on Borregas Avenue in Sunnyvale in July 1984," says Shiraz, who had to dig into his own pockets to ensure development went smoothly. "I paid for airline tickets and hotel bills for my hardware team using my own personal credit cards and was not paid until much later. I think the real development began in August; we didn't usually get home until 11pm some nights, and sometimes it was well after midnight."

This punishing schedule was made even more demanding because Shiraz knew exactly what would happen if he failed to deliver the goods on time. "If we did not come through we would have had to close shop," he states, matter-of-factly. "You can imagine I really felt the very heavy burden of responsibility. We had no choice but to deliver a product that was superior in terms of performance and price." Amazingly, this intense pressure seemed to bring out the best in the team. "I felt very confident and comfortable that I and the team were up to the task," states Shiraz. "After all, I had a core hardware team of four engineers from Commodore that had worked for me in the past so I knew what they could do. We integrated with people from Atari and had a very small but efficient team that worked very hard to get the hardware done in record time. Somehow, although there was much pressure on us, I did not have any sleepless nights. This is because of the trust I had in the team."

The engineers at Atari originally envisaged the machine as a 'true' 32-bit computer, but eventually compromised and settled for a 32-bit

INFORMATION

Year released: 1985

Original price: £749.99 (with monochrome monitor)

Buy it now for: £10+

Associated magazines: *ST Format, ST Action, Atari ST User, ST World*

Why the Atari ST was great... Atari would still be remembered solely as the company that flushed the entire videogame industry down the toilet in the early Eighties were it not for the saviour that was the ST. It may have lost the war to the Commodore Amiga, but this legendary machine was the first true 16-bit home computer and played host to such seminal games as *Dungeon Master* and *Starglider*. It was also brilliant for bedroom tunesmiths thanks to its built-in MIDI support.

COMMUNITY ATARI ST SITES TO WATCH

Atari Museum

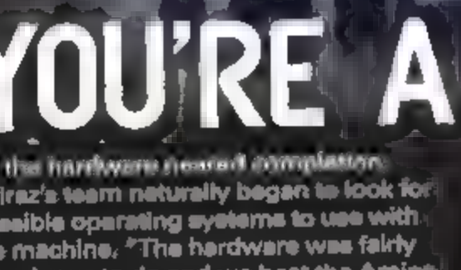
www.atarimuseum.com

A robust archive backed by former Atari employees, this site has lots of info images and other resources. It's well presented with many sub-sections featuring unique layouts based on classic Atari hardware. Essential if you're interested in the ST and Atari in general.

Atari Legend

www.atarilegend.com

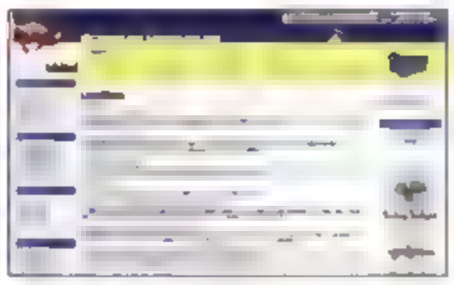
Solely focused on keeping the memory of the ST alive, Atari Legend doesn't get updated as often as we'd like but still contains a lot of interesting content including reviews, interviews and demos. Well worth a look should you be inquisitive about Atari's home computer.



ATARI.ORG

www.atari.org

A bustling and active community, Atari.org not only contains a wealth of information but also hosts several other sub-sites run by Atari fanatics. It doesn't look like much but is easy to navigate and is a great place to keep up to date with developments in the Atari world.

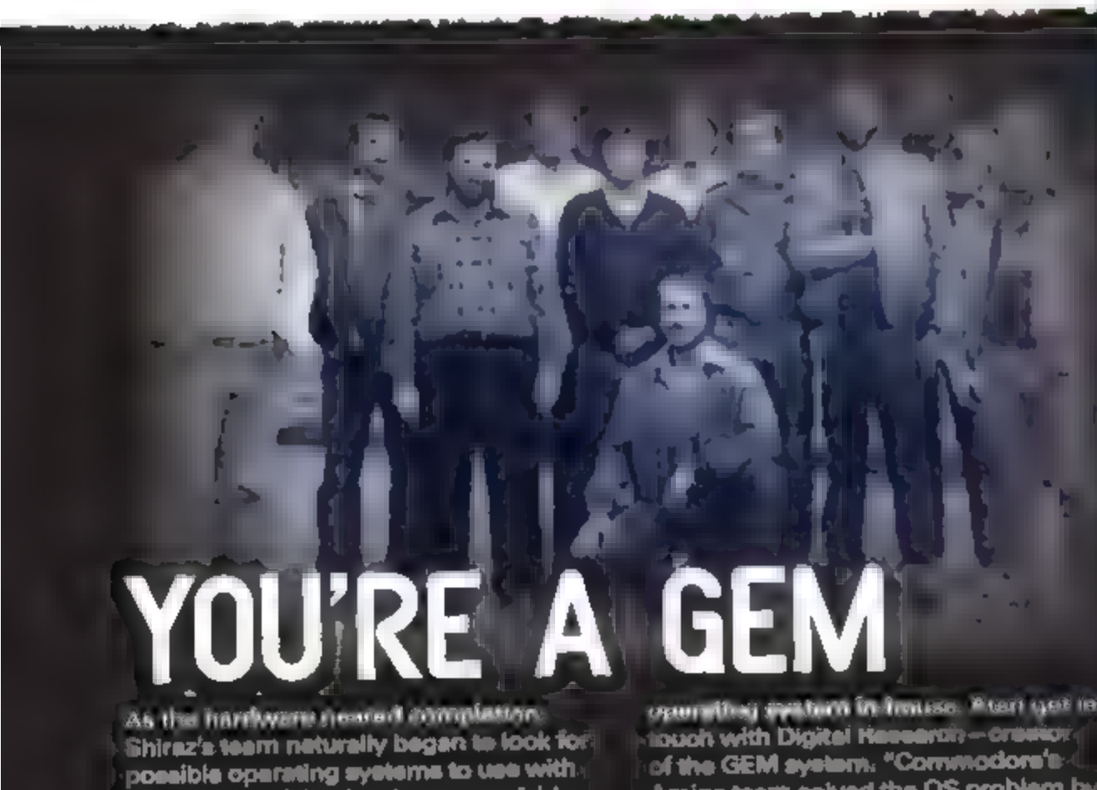


Little Green Desktop

www.atari.st

The name of this site alludes to the distinctive tint of the Atari TOS operating system; the design may hurt your eyes but the content is excellent. As well as running a spotlight on a particular game every day, it also delves back into old copies of *ST Format*.

» Borregas Avenue, Sunnyvale California – the site of Atari's HQ during the ST years



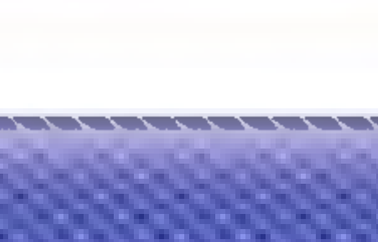
YOU'RE A GEM

As the hardware neared completion, Shiraz's team naturally began to look for possible operating systems to use with the machine. "The hardware was fairly easy for us to do and we beat the Amiga team to the punch although they had started at least two years earlier," says Shiraz. "The problem we both had was how to get a modern operating system. Early on in the development of the ST, Atari was contacted by Microsoft with the suggestion that the company port Windows to its new home computer. This idea was rejected as Windows was still two years away from being finished, and given the pressing need to get the ST in shops, Atari simply could not afford to waste time. Casting aside the expensive alternative of coding an operating system in-house, Atari got in touch with Digital Research – creators of the GEM system. "Commodore's Amiga team solved the OS problem by going to the UK to get a sophisticated multitasking system, but for us we really had no choice but to go with Digital Research," explains Shiraz. "We came up with a deal with Gary Kildall, president and CEO of Digital Research, to license and use GEM and to use some of his engineers to help port it on the Atari ST. We sent a team of engineers to work in Monterey, where Digital Research was located." It was a task of truly Herculean proportions, as bugs in the GEM system were still being ironed out while the porting took place, but the team (pictured above) succeeded.

VERSIONS

Atari STacy (1987)

Essentially a portable ST, this unwieldy beast ran off 12 C cell batteries and would grant a measly 15 minutes of use before exhausting its power supply. Ironically, it could imitate the more expensive Apple Mac Portable via emulation and was even faster – proof that the ST's power was not to be underestimated.

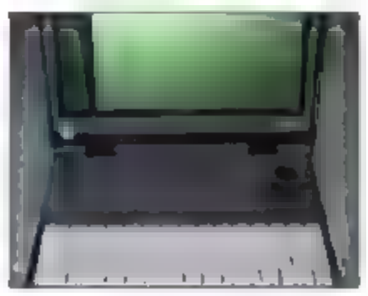


Atari STE (1989)

The ST Enhanced was pretty much how it sounded – a slightly improved version of the original machine. It featured a larger colour palette, improved sound capabilities and a new graphics co-processor, but sadly few games were produced to take advantage of this new power, and the machine proved too little, too late.

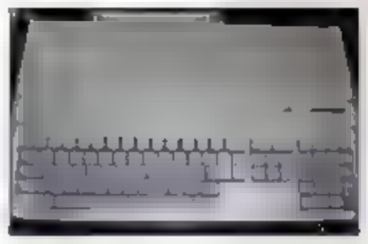
ST Book (1990)

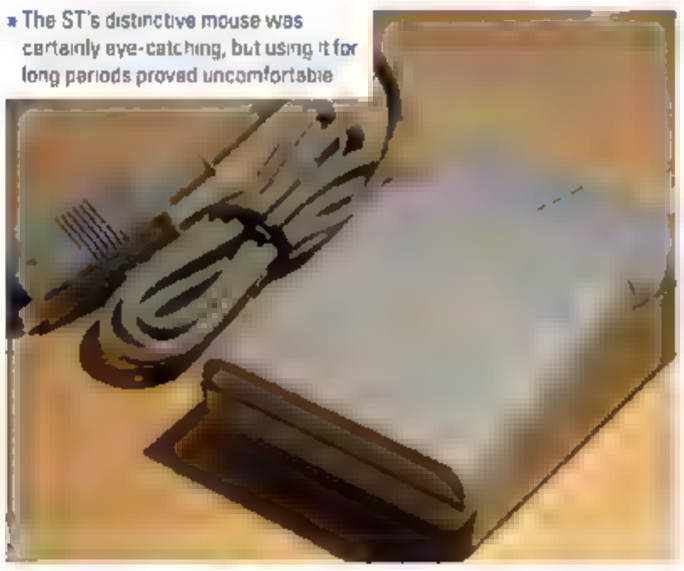
Amazingly, the STacy wasn't a complete disaster and this led Atari to produce a successor – the ST Book. Slimmer and more portable than its forebear, the ST Book was less power hungry because it lacked a backlit display – which naturally made it hard to use in dim light.



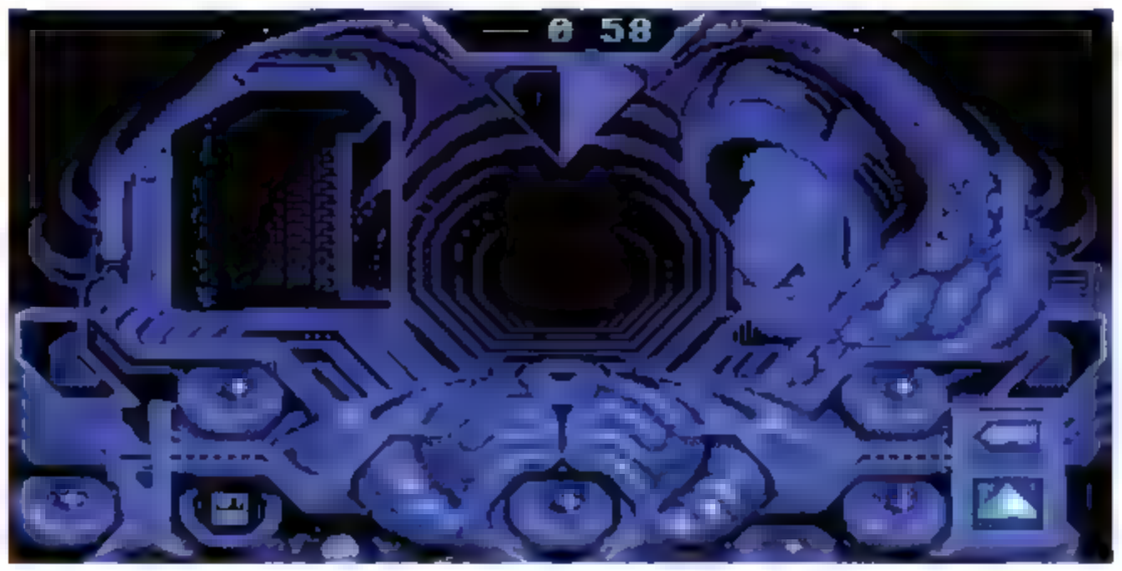
Atari Falcon (1992)

The final entry in Atari's home computer range, the Falcon was so hurriedly rushed to market that the casing wasn't ready for launch and so it used the 1040 ST external instead. Discontinued after a year, the Falcon remains a popular platform for those interested in hardware modification.





» The ST's distinctive mouse was certainly eye-catching, but using it for long periods proved uncomfortable



» The ST's TOS (Tramiel Operating System) in all its lurid green glory

» Jack Tramiel (pictured) and Shiraz Shivji in the Eighties

processor that communicated through a 16-bit external bus – the abbreviation 'ST' actually stands for '16/32'. "We had a meeting with the CEO of National Semiconductor, who was anxious for us to use their 32-bit NS3200 processor," remembers Shiraz. "It turned out that even though the Motorola 68000 was a quasi-32-bit chip, the performance turned out to be as good, if not better than the National Semiconductor's true 32-bit chip. Motorola had a number of parts that they could not sell as one of the parameters did not fully meet their specification, but we found that this particular parameter could be relaxed in our design and so we could use these parts that would have to be thrown away, saving both us and Motorola several million dollars." Amazingly, despite these cost-cutting measures, the ST was still able to outperform more expensive rivals. "Our design was so optimised for performance and cost that you could emulate the Apple Macintosh – if you had the Apple ROMs – and an application would run faster on the Atari ST," reveals a justifiably proud Shiraz.

As the project neared completion, Shiraz and his team started to realise just how amazing their achievement was. They had taken the ST from rough concept to final product in less than half a year, and when 85 per cent complete ST machines were shown at the CES show in 1985, it amazed the industry. "I was very proud that the team had accomplished so much in a short period of time," says Shiraz. When the machine officially launched in May, it marked the dawn of a resurgence for the previously ailing company and it speaks volumes for the popularity of the ST range that when Tramiel took Atari public in November, stock was selling for nearly triple its original price just a few months later. The ST had saved Atari from the scrapheap, and all in less than half a year.

Business or Pleasure?

It may come as a shock to learn that the man behind the ST isn't much of a gamer. "I'm not into games myself but I am quite aware of what needs to be done in the hardware to create good games," says Shiraz. "With the ST, the processor/memory bandwidth is highly optimised, leading to very fast graphical interactions. I think the entertainment software for the ST was reasonably good, but first and foremost this was going to be a consumer machine." Despite this obvious focus on business, the ST played host to some truly groundbreaking pieces of software and received sterling support from the likes of Bullfrog (*Populous*), Spectrum HoloByte (*Falcon*), FTL (*Dungeon Master*), Realtime Games (*Carrier Command*), Argonaut (*Starglider*) and David Braben (*Virus*).

The ST may have been great for games but it also proved to be a hit with musical types, too. "Right from the start we were interested in providing good musical capability," explains Shiraz. "Since we felt that the Yamaha chip in the ST was not as strong as we would have liked, we thought that we should put in an interface for external music access. We found that we could do it rather inexpensively using a Motorola serial chip and a connector for the MIDI-port. The total cost for this was 75 cents. The biggest problem was finding the space for connectors in the back. Musicians found it a great and inexpensive MIDI instrument."

Sadly, it didn't take long for Commodore's Amiga to overshadow the ST and as the Eighties drew to a close Atari's machine was starting to trail its opponent. US sales dropped off dramatically, but in Europe the machine remained a healthy success. Shiraz has his own theory on this disparity: "The reason is very simple: distribution channels. Atari did not have any distribution channels to speak of in the US. In Europe, on the other hand, we had a great cadre of ex-Commodore people and dealers that we could use."

Ironically, considering they were locked in battle for much of their lifespans, the Atari and Amiga are intrinsically linked. "Jay Miner was at Atari in the old days and was involved in the design of their products," explains Shiraz. "He left Atari to design the Amiga. Atari had funded some of this effort and had an option to buy the Amiga and when we took over in July 1984 the first order of business was to decide what to do with this option. The problem was that the Amiga was not quite ready and would need a lot of money to fully acquire. We decided to pass, but this put enormous pressure on our own development team. Commodore on the other hand did not have an internally developed 32-bit graphics oriented machine or the confidence to develop anything internally, so they ended up buying the Amiga for between $25-30 million and spent a further $20 million or so on it, releasing it a little after the launch of the ST. The roles were reversed - the Atari ST has a Commodore pedigree while the Commodore Amiga has an Atari pedigree."

To claw back some of the market, Atari sanctioned the release of an updated machine, dubbed the STE, with the E standing for 'Enhanced'. Sadly the ploy failed and few programs took advantage of the STE's augmented capabilities. Shiraz's involvement was minimal. "I was on my way out of Atari at that time. I left in 1989." Other versions of the computer were also put into production, including the ambitious Atari TT and Falcon, but neither of these met with any degree of success. "The problem was that Motorola had lost the processor battle," comments Shiraz. "The TT was based on the Motorola 68030, a successor to the 68000. This processor was clearly inferior to the 386 and 486 from Intel. There was no way Atari could compete with Motorola processors." In 1993, Atari pulled the plug on its range of home computers in order to focus its attention on the ill-fated Jaguar console and sank once again into a period of recession.

Having created one of the quintessential home computer platforms of the past 20 years, what memories does Shiraz hold dearest after all this time? "The teamwork was outstanding," he replies. "Even today most of the members of the team look very fondly at that time as the best years of their lives. The total hardware development was done in the space of five months. I have not seen such an accelerated development for such a complex project in that amount of time."

PERFECT TEN GAMES

There were so many great games released for Atari's ST. Sure, many of them also appeared on its more powerful Commodore rival, but, in all honesty, many of the games featured here proved to be as good, if not better than the Amiga versions. See what you think.

01

OIDS

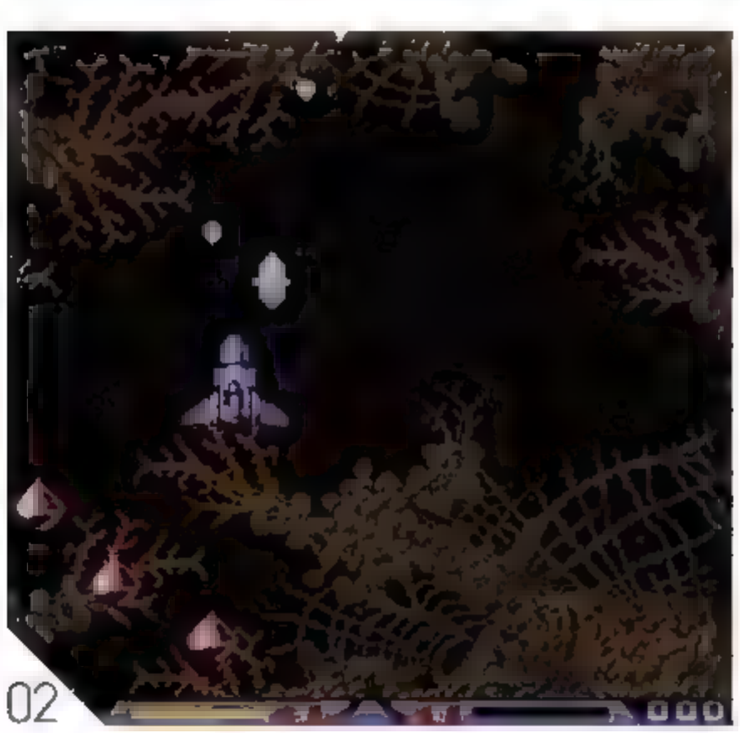
- **RELEASED:** 1987
- **PUBLISHER:** FTL GAMES
- **CREATED BY:** DAN HEWITT
- **BY THE SAME DEVELOPER:** CHAOS STRIKES BACK

01 **We're willing to** put our neck on the line here and say that this *Thrust* clone by Dan Hewitt is probably the best game of its type. Piloting a triangular V-wing fighter, your job was to travel to a variety of hostile planets to liberate the titular Oids – the planets' imprisoned android slaves. However, working against you was the strong gravitational pull of the planet's surface, which attempted to drag you into its sharp, mountainous maws. On top of this you also had to deal with hordes of rocket-spewing enemy spacecraft and your ship's rapidly depleting fuel gauge. The icing on the cake came in the form of a nifty level editor that allowed you to effortlessly mock up your own planets and galaxies to play through.

XENON 2: MEGABLAST

- **RELEASED:** 1989
- **PUBLISHER:** IMAGEWORKS
- **CREATED BY:** MARTIN DAY
- **BY THE SAME DEVELOPER:** CADAVER

02 **The Bitmap Brothers'** sequel to its seminal shoot-'em-up franchise was entrenched in trippy colours, eye-blistering visuals and a punchy soundtrack by acid house musician Tim Simenon (aka Bomb The Bass). Playing slightly differently to its predecessor, however, *Xenon 2: Megablast* retained the vertical shooter ideals of the original, but would drop the vehicle-shifting and arena setting for an unusual underwater backdrop, plus a unique vertical-scrolling perspective that allowed players to pull the camera backwards. While *Xenon 2: Megablast* feels somewhat sedate when compared to some of its Eastern contemporaries, the game still proves to be a great blast and this Atari ST port is just sublime.


02

MIDWINTER

- **RELEASED:** 1989
- **PUBLISHER:** RAINBIRD
- **CREATED BY:** MIKE SINGLETON
- **BY THE SAME DEVELOPER:** WAY'N MIDDLE EARTH

03 **Many people are** put off by *Midwinter*'s complexity, but those who invest time into the game are greatly rewarded. Set in Midwinter, a sprawling island forged inside harsh snowy wastelands, the player must try to stop a maniacal general from overthrowing the snowy islet. Playing the role of a police officer, your mission is to explore the island, evade enemy troops, and enlist the support of the islanders. Played out through a first person perspective, *Midwinter*'s harsh and bitter environment won't be to everyone's tastes, but it's definitely a place that every ST owner and strategy fan should take time to visit.

TIME BANDIT

- **RELEASED:** 1986
- **PUBLISHER:** MICRODEAL
- **CREATED BY:** BILL DUNLEVY AND HARRY LAFNEAR
- **BY THE SAME DEVELOPER:** 8 BALL

04 **If you're after** a game that fuses elements of *Pac Man*, *Bomberman*, *Gauntlet*, time travel and text adventures then you should track down *Time Bandit*. Debuting on the Tandy TRS-80 before being ported to the Amiga and ST, its authors Bill Dunlevy and Harry Lafnear, set about refining it brilliantly with the extra power. As a treasure hunter your mission was to travel to 16 distinct worlds to collect valuable artefacts. One of its neat touches is that many of the levels pay homage to classic arcade games. Shadowland, for example, is clearly a send-up of Namco's pill-chomping maze classic, *Pac-Man*.

NO SECOND PRIZE

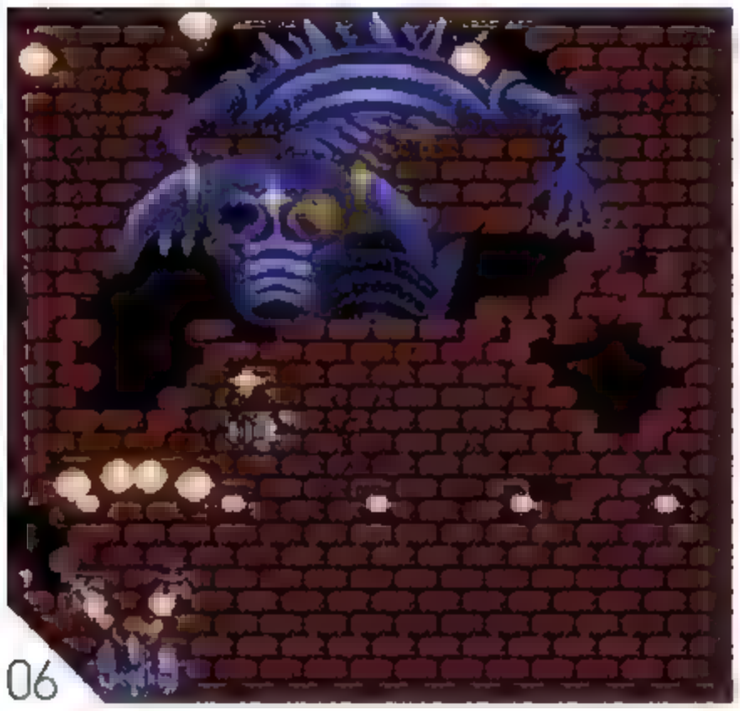
- **RELEASED:** 1991
- **PUBLISHER:** THALION
- **CREATED BY:** CHRIS JUNGE N
- **BY THE SAME DEVELOPER:** ATOMIX

05 ***No Second Prize*** was a slick 3D motorbike racer that was clearly a few hundred CCs ahead of its contemporaries. The game featured six distinct drivers, 20 well-designed and diverse tracks and some staggeringly smooth scrolling. Bolstering its lavishness were its neat vector 3D graphics, a finely tuned difficulty curve and a sublime electro-rock soundtrack by one of the most established composers in the ST scene – oh, and you could edit your own replays after each race, too, as it was one of the earliest games to let you do that. If you're looking for a great alternative to the excellent *Stunt Car Racer* then you should really seek out this overlooked ST classic.

03

04

05



06

LETHAL XCESS

» **RELEASED:** 199
» **PUBLISHER:** ECLIPSE SO T WA
» **CREATED BY:** C.AUS FREIN
» **BY THE SAME DEVELOPER:** STONE AGE

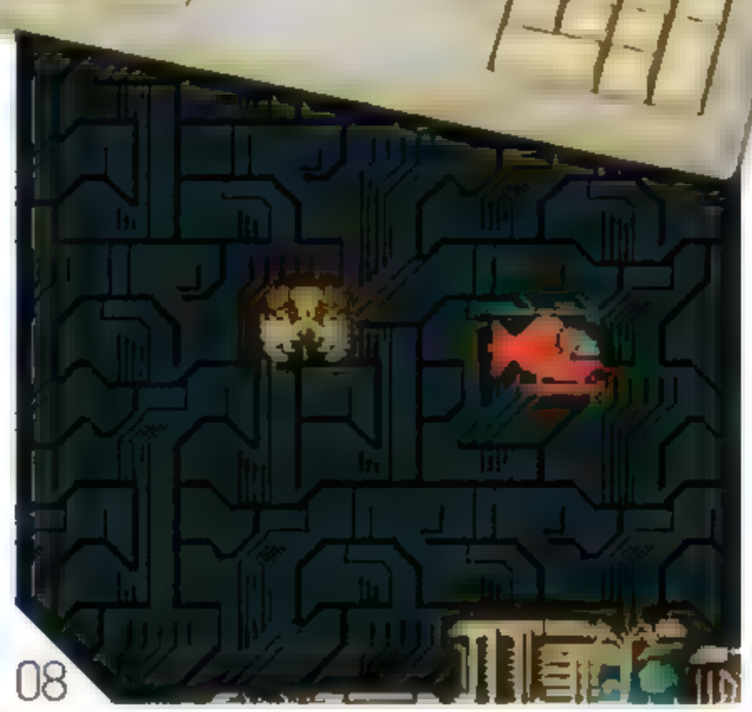
06 **Yet another ST** classic, *Lethal Xcess* is a masterpiece on the ST that pushes its technical boundaries to the limits. While there exist far better examples of the top-down vertical shooter *Lethal Xcess*'s greedy looking sprites, and frenetic kill-everything-that moves gameplay, struck a chord with ST owners. A sequel to another underappreciated top-down vertical shooter called *Wings Of Death*, *Lethal Xcess* boasted a neat two-player mode and a novel power-up system that allowed you to power up your power-ups. But even with a pal and a super weapon, this game is harder than pure maths

07

CAPTAIN BLOOD

» **RELEASED:** 1988
» **PUBLISHER:** M NDSCAPE
» **CREATED BY:** PHILIPPE JLRICH
» **BY THE SAME DEVELOPER:** E L E X T E R

07 **The prospect of** getting sucked into your own videogame s one that few programmers — other than the team behind *Rumble Roses* — would relish, but this is the dilemma facing Captain Blood, and that's only the start of his problems. After being zapped inside his own binary, Blood discovers he s been cloned and each of his doppelgangers are leeching off his life-mojo. It s up to you to travel the galaxy, decipher peculiar alien text and track your targets before it's too late. A mix of *Tron* and *Blade Runner*, with some Giger style imagery and Jean Michel Jarre tunes thrown in, *Captain Blood* is a gloomy but atmospheric RPG classic.



08

BLOOD MONEY

» **RELEASED:** 1989
» **PUBLISHER:** [illegible]
» **CREATED BY:** D[illegible]
» **BY THE SAME DEVELOPER:** Dee[illegible]

08 **We were toying** with putting *R-Type* on this list, but felt David Jones' *Blood Money* was the marginally better side-scrolling blaster. It's smoother, looks amazing and has an innovative gameplay mechanic where certain enemies would rather pilfer your pockets than cause you damage. Anyway, sticking with the *R-Type* comparisons, *Blood Money* can best be described as Irem's game but set underwater. Controlling a chubby-looking red submarine, your mission was simple: avoid hitting the walls, shoot anything that moves, collect the coins and kit out your vessel with all manner of power-ups. *Blood Money* is simple, sublime fun. Be warned, though: it's no doozy

09

STARGLIDER

» **RELEASED:** 1986
» **PUBLISHER:** ARGONAUT SOFTWARE
» **CREATED BY:** J[illegible] MY [illegible]AN
» **BY THE SAME DEVELOPER:** STARFOX

09 **One of Argonaut** Software's earliest games, *Starglider* clearly has the company's 3D vector stamp all over it. Your mission was to traverse the planet of Novenia and blast away any and all alien craft from inside your AGAV or Airborne Ground Attack Vehicle. Inspired by Jeremy San's love of Atari's brilliant *Star Wars* coin-op, *Starglider* became a high-profile release and a big hit after it appeared in cut-down-for-telly-competition form on popular children's television show *Get Fresh*. Packed with a 64-page novella which was scribed by fiction author James Follett, *Starglider* was an engaging space blaster that slotted nicely between the fast-paced arcade action of *Star Wars* and the immersive reaches of the more strategic *Elite*

DUNGEON MASTER

» **RELEASED:** 1987
» **PUBLISHER:** F T[illegible]AM[illegible]S
» **CREATED BY:** [illegible]
» **BY THE SAME DEVELOPER:** [illegible]

10 A sprawling and flawlessly designed first-person RPG that oozed atmosphere, bagged itself a trove of awards and went on to influence a swathe of classic RPG brilliance, including the likes of *Lands Of Lore* and *Eye Of The Beholder*. The game is a brilliant portent of 3D labyrinthine levels, wonderfully imaginative creature designs and accessible RPG elements. It's brilliantly intuitive mouse-controlled interface, glorious colourful visuals, fantastic strident score and real-time combat helped to make it a huge success around the world. The game has since spawned four sequels, with the latter, *Dungeon Master Nexus*, finding an exclusive release on the Sega Saturn, a game that never found a release outside of Japan

10

RETROINSPECTION

NES

WHAT'S IMMEDIATELY NOTICEABLE ABOUT ANY RETELLING OF THE NINTENDO ENTERTAINMENT SYSTEM SAGA IS ITS RECOGNISED STATUS AS SAVIOUR OF THE VIDEOGAME INDUSTRY. WHILE THIS IS CERTAINLY TRUE ON A GLOBAL SCALE, HERE IN THE UK THE NES HAD TO STRUGGLE AND FIGHT TO EARN ITS REPUTATION, NOT LEAST OF ALL AGAINST NINTENDO ITSELF. ALTHOUGH MUCH OF THE ACTION TOOK PLACE IN JAPAN AND THE US, THE INDUSTRY'S KNIGHT IN PLASTIC ARMOUR FACED VERY DIFFERENT BATTLES ON OUR SIDE OF THE POND TO BECOME THE LEGEND IT IS TODAY, AND IT FACED THEM ALONE...

Regardless of wildly erratic release dates, mastermind launch tactics, outstanding tech specs and bewildering global sales figures, one aspect is paramount over all others: to talk about the NES is to talk about the rebirth of the videogame industry from the fires of a devastating market collapse.

But the industry has always been very much compartmentalised, and trends have never travelled well across the oceans. While America – the feeding ground of the avaricious developer – turned its back on videogames in the early Eighties, the Japanese continued with their normal game-playing lives quite happily, prompting relative newcomer Nintendo to bring its flourishing coin-op into homes.

THE HOME VIDEO COMPUTER

This was a more significant change for Nintendo than most gamers ever realised. Up until 1983, Nintendo would have been better described as an electronic toy manufacturer – not a software or game developer. Product ranges from lightgun clay pigeon shooting to electronic love testers were far more synonymous with the name Nintendo than any form of game mascot or living room-based entertainment.

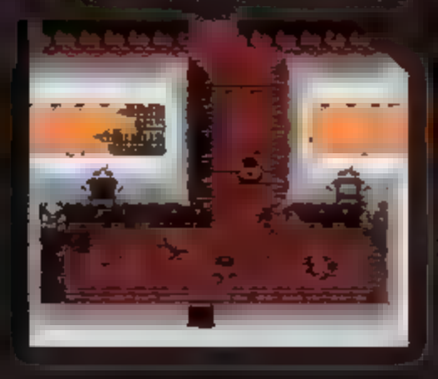
It was only natural for Nintendo to experiment with the *Pong* craze sweeping through the Seventies, and a decent addition to the fist was made in conjunction with Mitsubishi in the shape of the TV Game 6 and its unimaginatively named successor, the TV Game 15 – we'll leave you to work out the difference between the two units yourself. Although a worthwhile introduction, the two systems did nothing to persuade Nintendo that home videogames were the future, and efforts shifted organically toward the arcades. Viewing from afar the self-destructive market saturation that America was suffering from with home consoles in the late Seventies, Nintendo was resolute that pay-per-play was the only way money could be gleaned from videogames.

Rather astutely, however, it deviated slightly from standard product ranges in 1980 as industry legend Gunpei Yokoi developed the immortal and extraordinarily successful Game & Watch series of handheld LCD units with the help of his friend and colleague, Maseyuki Uemura, whom Yokoi had poached from electronics giant Sharp. At the same time, fellow game design prodigy Shigeru Miyamoto was putting the finishing touches on Nintendo's eminent arcade smash, *Donkey Kong*.

This new arcade machine finally broke through the cultural barrier between the East and West, establishing Nintendo as a world gaming power overnight.

Not For Your Eyes

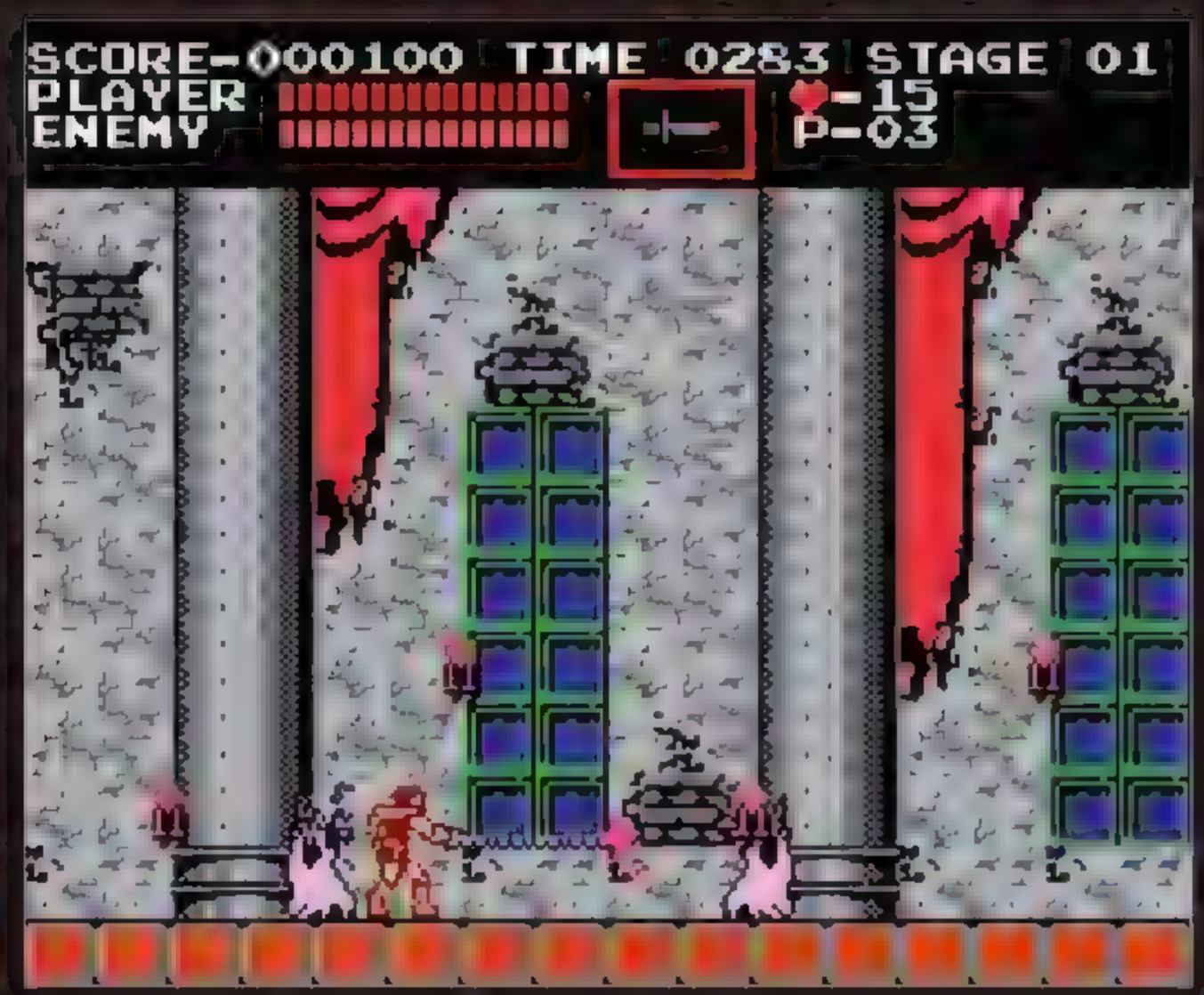
Over the years there have been many titles that either went unreleased, were altered several times before release, or were simply never translated from Japanese to English – great games that were painfully out of our reach. Thankfully in recent years, with the advent of the Internet and obsessive fan groups, it's now possible to 'acquire' various unreleased titles, along with Japan-only games that have been fan-translated. Frank Cifaldi's **LostLevels.org** is one such repository of unreleased games, making available titles like *California Raisins*, the beta cartridge of which sold for around $1,000; *Sunman*; and also the uncensored version of *Maniac Mansion*. Elsewhere you can find the official English translation of the unreleased *Earthbound Zero*, a wonderful RPG. For unofficial fan translations, **ROMhacking.net** will serve all your needs with access to loads of legal NES language patches. We recommend trying *Sweet Home* – it's an amazing horror RPG by Capcom and a spiritual predecessor to *Resident Evil*.



"THIS NEW MACHINE ESTABLISHED NINTENDO AS A WORLD GAMING POWER OVERNIGHT"

There was still plenty to love
It came loaded with gaming

NES



» The humble NES *Castlevania*, which led to the brilliant *Castlevania IV*. Then the magnificent *Symphony Of The Night*. Then there was *Castlevania 64*, which was... actually, scratch that last one. It was rubbish.

because of its age. The MOS 6502 was designed in 1975 and had already seen considerable use in the videogame industry, primarily in a cut-down version for the Atari 2600 and at the core of both the Apple I and II computers.

By the time Nintendo was drawing up designs for the Home Video Computer, as its first ROM cartridge system was designated during the prototyping stages, the MOS chip was a veritable home computing bargain, weighing in at less than $30 compared to the 68000's $179 price tag. When modified by long-lived Japanese electronics giant Ricoh, which removed the binary decimal mode to make room for 22 extra memory registers for joypad input, sound generation, sprite based memory access and more, a deluge of game-specific blood was squeezed from the revamped 'system-on-a-chip' stone.

THE BIG PUSH

The final few months of development in 1983 brought all the different factions of Nintendo together in a way that united the company like never before. If there was a strength within the company, it was scrutinised, redeveloped and integrated into the renamed Nintendo Family Computer, or Famicom as it quickly became known. (The developmental name was still acknowledged, however, in the system's hardware ID: HVC-xxx.) The revolutionary control system of Yokoi's Game & Watch handhelds was built into the joypads – what we now rather sanitarily refer to as the D-pad – and Miyamoto's *Donkey Kong* was beautifully converted for the launch, while strict quality controls were built into future licensing deals and a plethora of peripherals were primed to take the bare bones base unit into the next generation of home entertainment as soon as the competition showed any signs of panicked response.

"IN AMERICA, THE MARKET HAD DISAPPEARED INTO A BLACK HOLE OF AVARICE, AND ALTHOUGH ALL THE COMPETITION HAD GONE WITH IT, SO HAD THE CUSTOMERS"

Realising this was hot property, Uemura was given the previously uninspiring task of getting Nintendo home gaming units firmly encamped beneath the TVs of Japan. His brief was at once simple and impossibly demanding: this new Nintendo system must be cheaper and higher quality than the closest competition. Don't you just love how the Japanese refuse to pull their punches when it comes to setting targets?

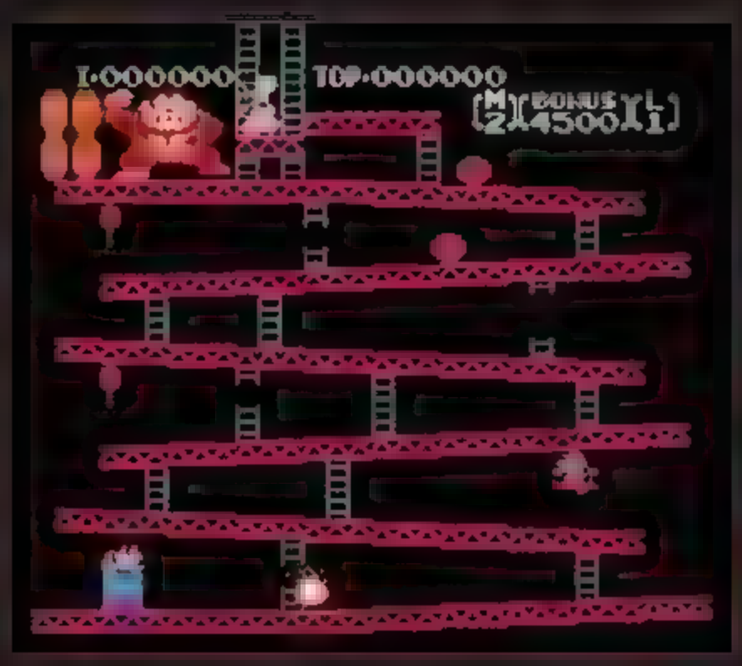
His concept was equally simple in application, yet intricate in construct. A major factor in Uemura's answer to this difficult question was his unexpected use of the revolutionary MOS 6502 CPU. An equivalent of the popular Motorola 68000 – designed by the same engineering team, in fact – Nintendo's choice of processor was surprising not because of the capability of the chip, but simply

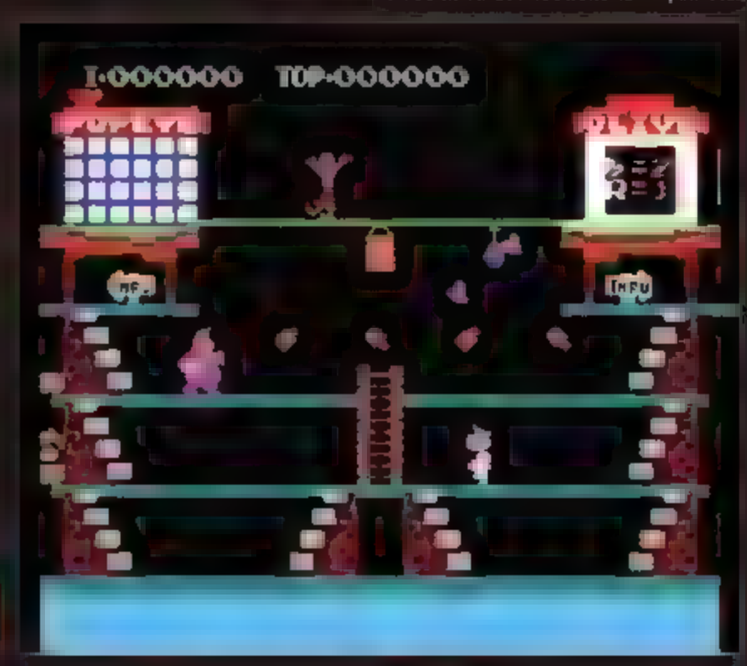
» **Below left:** Originally co-developed by Fuji TV and Nintendo – with heavy Miyamoto involvement – for the Famicom Disk System, *Yume Koujou Doki Doki Panic* went on to be released as *SMB2* (**below**) in the West.

On 15 July 1983, Japanese stores rang to the sound of Nintendo-based sales. But the launch was not without its problems. A glitch between an erratic chipset and their attachment to the motherboard caused consistent reliability issues, and president of Nintendo Hiroshi Yamauchi made a bold decision to recall the entire first batch of Famicoms. The corporate danger of acknowledging an immediate design issue with the new console was, he stated, secondary to maintaining Nintendo's good name in the long term. Apparently the game-playing public agreed, and bearing no grudge against the console's troubled birth, the second release of the Famicom, featuring an entirely new chipset batch with round controller buttons replacing the previously square, prone to sticking, ones, was met with unprecedented success.

Over 500,000 units sold within the first two months of the second Japanese release, and the Famicom was subsequently distributed throughout East Asia. Retailing at ¥14,800, Nintendo managed to shift over 19 million units within its native shore alone during the impressively long lifespan of its beloved console. But over in America, the market had disappeared into a black hole of avarice, and although practically all the potential competition had gone with it, so had the customers.

Much of the feeling around Nintendo was that the cultural divide was simply too great to bridge, and attention was better spent on local retailing. But just as he'd done with the coin-op business, Yamauchi was adamant that Nintendo was going Stateside with its games and hardware. Initial licensing and distribution talks with failing Atari quickly fell through, so the task once again fell to the beleaguered, yet proven capable, Nintendo of America.





» In Japan the system didn't launch with *Super Mario Bros.* Instead they received the below three titles. All were conversions of arcade games, and all three have connections to Miyamoto.

Fresh from its successful manufacture, launch and distribution of the *Donkey Kong* coin-op, NOA attempted to reignite the American gamer's consciousness with a somewhat pitiable demonstration of the Nintendo 'Advanced Video System' at the 1984 CES show. Many toy distributors openly laughed at the attempt to sell a games console, while others rushed past in embarrassment or cast vitriolic, vengeful gazes at the videogame hardware that had almost ruined them the year before. It was a categorical disaster.

IT'S NOT A VIDEOGAME. I SWEAR!

A stoutly traditional Japanese man, Yamauchi steadfastly refused to accept the American rejection of his console. So, for the 1985 CES show, the infinitely resourceful NOA team cleverly redesigned the machine into the Nintendo Entertainment System – renamed to remove any connotations of it being a videogame – deliberately creating a featureless, grey brick that in no way resembled a console, adding subtle nuances such as a front loading cartridge slot intended to make the system blend in with VCRs, distracting consumers from its real purpose as a videogame.

Packaged with a couple of fairly superfluous peripherals – a lightgun called the Zapper and ROB the Robot, a marginally interactive remote-controlled toy intended to work together with the games – the actual NES base unit was adequately camouflaged. This backdoor approach helped the system slip under the radar of many toy distributors, and as the Christmas season approached, the second phase of the American plan came into play.

» *Final Fantasy*, ironically titled because Square only had enough money to publish one final game. Luckily it was a huge success.

At considerable peril to their already tenuous branch of the Nintendo Empire, NOA offered New York shop owners a risk-free option for stocking the NES console over the commercial sales period. Nintendo itself would set up the store displays and grant owners a sale or return policy. If the console bombed over Christmas '85, the only one to lose out would be Nintendo.

The gambit, while not tremendously successful, provided one saving grace for the nervous salesmen at NOA. Consoles didn't fly off the shelves as hoped, moving around 50,000 units, but the steady and hopeful sales reassured shop owners that videogames were once again a viable commodity, and very few actually took Nintendo up on its return offer.

Miyamoto hadn't been set idle during the US crisis, either, and during 1985 he worked tirelessly to shoehorn his second arcade smash hit, *Super Mario Bros*, into a Famicom cartridge. As always, he was unswervingly successful, and Nintendo collectively saw its opportunity to invade the US once and for all. By October, a Western version was ready to be bundled with the NES console – a tactic designed to coincide with NOA's move to go national with its in-house distribution network.

THE LOCKOUT

Piracy was soon rife in Japan, with cloned Famicom cartridges and cheap knockoff hardware flooding in from all across Asia. The Famicom contained no form of software security other than a strict licensing agreement that bound third-party developers to Nintendo's command. When the Famicom was redesigned for the world markets, several measures were taken to pre-empt any piracy or unlicensed development.

Some measures were simple and a direct quick fix to the local troubles. World cartridges were a different shape and pin out, physically prohibiting the use of Japanese games in non-Asian consoles. A secondary, and far more complex system, was also installed in the NES machines, known as the 10NES regional lockout chip. This chip required security codes, which needed a specific and critical timing system to be applied during the code transfer, to be present on the cartridges, and the only way for developers to get these codes was to ensure their game was licensed by Nintendo.

Over the years Nintendo has been criticised for its militant approach to licensing and security, and many of those claims are

Generation Nex

The long and celebrated life of the NES is currently being put right back on life support in the US by hardware manufacturer Messiah. Its 'new old' console, the Generation: NEX, is a neat little unit not much bigger than two NES cartridges that accepts and plays all old Nintendo Entertainment System games, whether they're US, European or even for the Japanese Famicom.

Sporting two cartridge slots – one on the top for Famicom games and one in the established 'front loading' position for NES carts – two controller ports identical to Nintendo's proprietary connectors allowing the use of any of your old peripherals, built-in wireless receivers for the additionally available wireless controllers, and composite video and audio outputs, this tiny and attractive little unit is surprisingly feature-packed.

"SHOEHORNING SUPER MARIO BROS INTO A FAMICOM CARTRIDGE WAS UNSWERVINGLY SUCCESSFUL – NINTENDO SAW ITS CHANCE TO INVADE THE US ONCE AND FOR ALL"

RETROINSPECTION

NES

"ALTHOUGH ET MAY HAVE PUSHED GAMERS OVER THE EDGE, IT WAS MERELY THE ICING ON A PARTICULARLY UNPALATABLE CAKE – NINTENDO WAS ADAMANT THE SAME WOULD NEVER HAPPEN TO ITS CONSOLE"

valid. And yet, as we look back, the edges begin to blur as to the position Nintendo was actually in. The market had only recently collapsed, due in no small part to extreme negligence of the industry, churning out five years of expensive, atrocious quality games. Although *ET* may have finally pushed gamers over the edge, it was merely the icing on a particularly unpalatable cake, and Nintendo was adamant that the same would never happen to its console – not after the hardship it had gone through in order to resurrect the market.

To comply with the 10NES lockout system, third-party developers had to sign a strict licensing agreement that limited them to producing only five games a year while granting Nintendo complete discretion when it came to quality control. While the majority of developers balked at such oppressive restrictions, others, including Capcom, whose carefully chosen first three NES titles – *Commando*, *Ghosts 'N' Goblins* and *1942* – all sold over 1 million copies, accepted the severe stipulations and proved Nintendo's theories almost immediately.

The early successes were all the reassurance Nintendo needed to enforce its licensing agreement at all costs. Yamauchi had shown from the outset that maintaining a respected reputation was far more important to him than quick sales, and regardless of the incensed twittering of game developers eager to flood the market with mediocre games, his chokingly tight reins undoubtedly helped the console enjoy such a long life.

Unfortunately, not all developers agreed with Nintendo's philosophy, least of all the English ones.

SALE-ING THE SEVEN SEAS

The story of Nintendo's Japanese and American establishment has been well told, but there are a lot of other countries with a dedicated gaming population. In truth, Nintendo could reasonably ignore any other sales avenues as long as the Japanese and Americans were living and breathing videogames, and the European introduction was reduced to nothing short of a stilted, insulting addendum to an otherwise grand plan.

Unenthusiastic distribution deals began to filter NES consoles into Europe in late '86, beginning in Scandinavia and Germany, then spreading into Spain and France before finally being brought to the UK by Mattel in the third quarter of 1987. A distinct lack of interest from Nintendo itself, coupled with Mattel's reputation as a toy company and a delay that took the console out of the technological heats, made for a hurdle that was far too high to vault in one leap.

The Sega Master System had hit the UK ground running, and while the American market may have disappeared up its own... disk drive earlier in the decade, this had created a wealth of opportunity in Britain for affordable home computers. Competing with the superior, and better established, Sega machine was one thing, but taking on the likes of the ZX Spectrum and its prolific catalogue of games on its home turf, or the astounding next-generation gaming power of the Amiga, was another entirely.

Sega claims a great deal of responsibility for ensuring the NES never gained a foothold in the European market, though in truth much of the culpability lies with Nintendo's own indifference to Europe, and the UK in particular.

Its attention was still firmly trained on the American and Japanese markets, where attention returned to the original concept of the Famicom: the family computer. Peripherals to deliver on the promise made by the system's name were steadily released: a disk drive, cassette deck, keyboard, modem and BASIC cartridges were all developed, with varying degrees of success, to allow Japanese Famicom owners to expand the potential of their prized machines.

By the time Nintendo International was established to take over from Mattel, Sega was tearing full steam ahead with the Mega Drive. This was the first chink in Nintendo's armour since 1983, and by ignoring the European markets, the company gave Sega the opportunity to maintain its developments and plan a strategy to work its way back into the primary markets. While Nintendo threw lawsuits about the place to sustain its dominion, attempting to stop everything from Rare's reverse-engineering of the 10NES lockout chip to Codemaster's Game Genie peripheral and the various attempts at releasing unlicensed third-party software, Sega embraced many of the other companies and their videogaming products, granting them a platform while shoring up its increasing market share.

» This was the first game developed by the creator of *Pokémon*, and actually, it's rather good fun. Kick the tiles to knock enemies over and discover secrets.

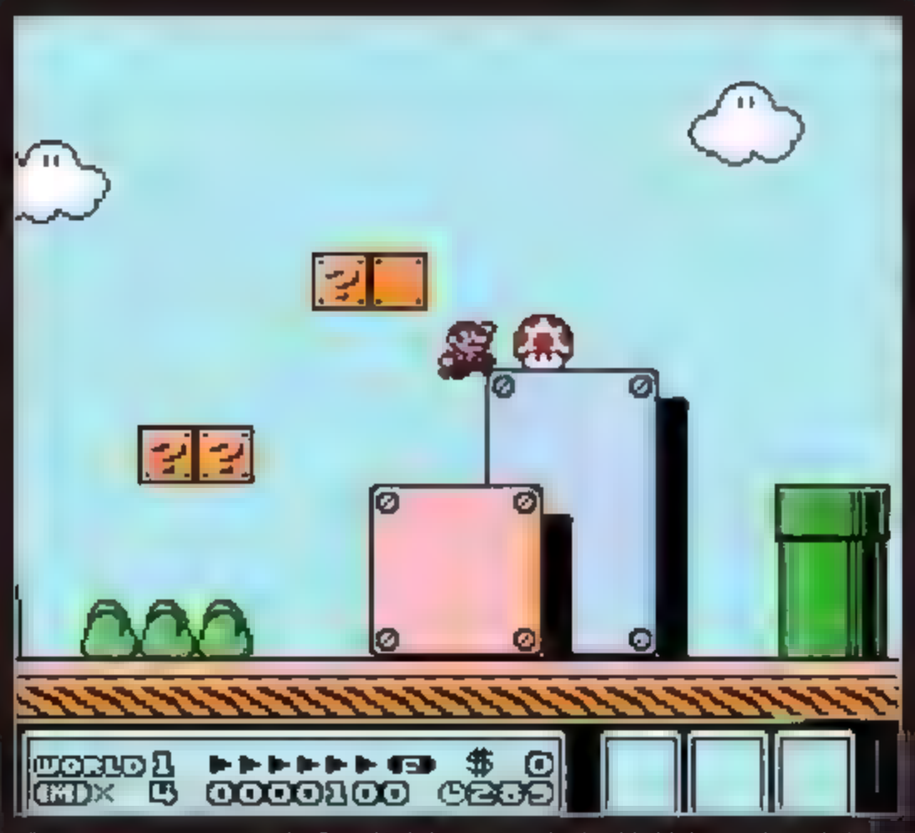
Famicom Love

The original concept of the Famicom (being a 'family computer') was reasonably explored with some great add-ons like the Disk System, keyboard, modem and a BASIC system. Some great games came out for the FDS (Famicom Disk System) that we never got to see. NES cartridges had a function removed that, on the Famicom, allowed games to access external sound hardware and produce far superior in-game audio. Conversions of Famicom games that took advantage of this feature are very noticeable by their underdeveloped internal audio.

The Famicom had no lockout system, which, other than making piracy easier, allowed Japanese developers like Capcom, Konami and others to add improved technology to their game cartridges and provide technically advanced games. The 10NES lockout system in our machines prevented these technical improvements from working.

The Famicom's top-loading cartridge slot proved considerably more reliable over time, being less prone to collecting oxidising dust on the edge connectors and being damaged by the sheering force of a misaligned cartridge entry.

» *Metal Gear* didn't start out on the NES, fair enough, but it was the system Kojima wanted to develop for, and it was eventually ported – albeit in a butchered form.



» Does anyone else remember the *Super Mario Bros 3* advert that had Mario's face made up of all the children in the world? We do.

» Konami was generally regarded as the best of the third-party developers, creating classic after classic, like *Contra* here.

Aside from the shabby marketing, the late '87 UK release date of the console would have been the perfect time to own a NES. The harsh whips of Nintendo had ensured five years of only the finest games were ready and waiting. Developers had found their programming feet, while Nintendo's internal teams had fully dedicated their elite to making first-party titles. *Super Mario Bros* came bundled for the reasonable price of £69.99, while the Westernisation of Shigeru Miyamoto's celebrated *Legend Of Zelda* – the first cartridge to contain a battery backup save game feature – landed, quite by chance, at exactly the right time to reassure UK NES users.

Million-sellers were becoming increasingly common, yet the company's belief in its own divine status began to push developers to question the gospel and, thanks to the massive profits that Nintendo's quality regime had imposed upon them, they had the power to push the limits. Nintendo's authority was slipping.

THERE ARE NO ENDS – ONLY NEW BEGINNINGS

Being abandoned in Europe had given the console the opportunity to grow on its own, unhindered by the Victorian parenting that its American and Japanese cousins had known.

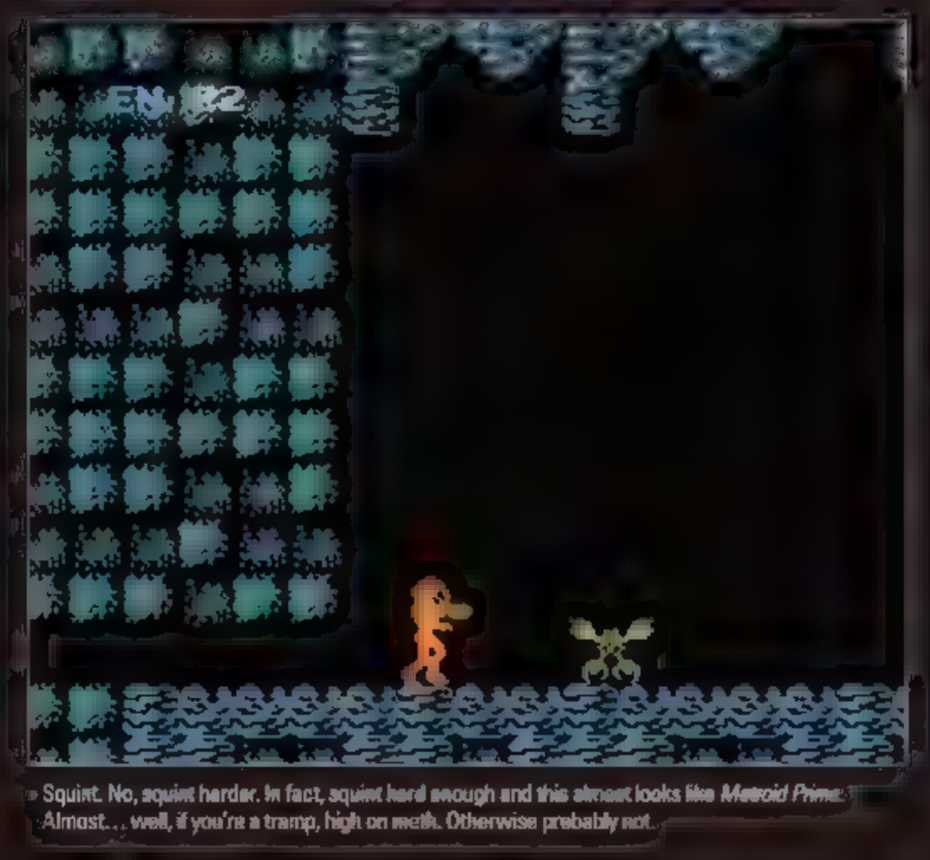
Third-party developers had lost their interest in purchasing the Nintendo Seal of Quality and flagrant importing began all across Europe. The few Italian NES owners discovered they were in the same retailing bracket as the better-supported UK, while Scandinavians openly swapped games among themselves and the Spanish. Cartridges were even developed that fired a voltage spike through the irksome 10NES chip, knocking it out and allowing unrestricted international sales.

The Famicom and the NES had a strong following, but times had changed dramatically from the post-apocalyptic wasteland that the machine was born into. The system was simply unable to provide the technologically advanced arcade conversions that gamers were demanding. Yet this new loose leash that publishers were enjoying with NES cartridges provided a crutch, which enabled the console to enter old age more gracefully than any other system had managed before it.

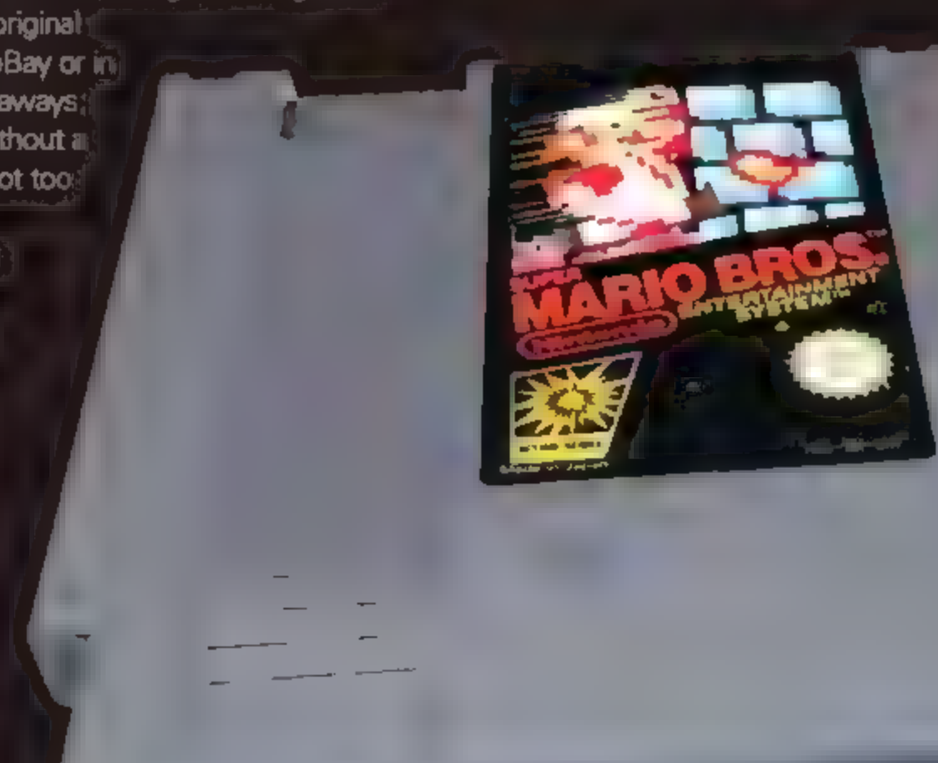
It was midway through the Nineties, and although people weren't queuing up to buy NES games at midnight, neither did they resent picking up the odd Nintendo bargain even as late as 1996. By this time, the NES had once again been redesigned to account for, among other things, failing cartridge connectors, which had suffered from their horizontal orientation and gathered enough oxidising dust over the years to force users to bend and twist their games to coerce reliability from the struggling components.

Another price drop to £49.99, seeing the console actually being outpriced by one of its own games for a short while, didn't hurt the life expectancy of the old campaigner either, and as the internet began to fully emerge, fan sites, homebrew programmers, hardware hackers and dedicated gamers began to form communities in celebration of Nintendo's grandfather console. Just as before, the NES didn't break any new sales figures but, along with its games, miraculously managed to retain its original value. Even today, NES games on eBay or in a charity shop are certainly not giveaways; five quid will buy you a cartridge without a box or instructions, but little else. Not too shabby for a 25-year-old format.

If anything, the impressively long life of the NES may actually have hurt Nintendo – dissuading players from upgrading to the Super NES upon demand – but it would be hard for anyone, least of all its parent company, to resent this amazing machine for providing hundreds of thousands of hours of entertainment, billions of yen in profit, and 60 million gamers worldwide with something incredible to do with their thumbs.



» Squint. No, squint harder. In fact, squint hard enough and this almost looks like *Metroid Prime*. Almost... well, if you're a tramp, high on meth. Otherwise probably not.



NES PERFECT TEN GAMES

For owners without the cartridge cleaning kit; here are ten of the best wedges of grey plastic you'll ever blow into

01

DUCK HUNT

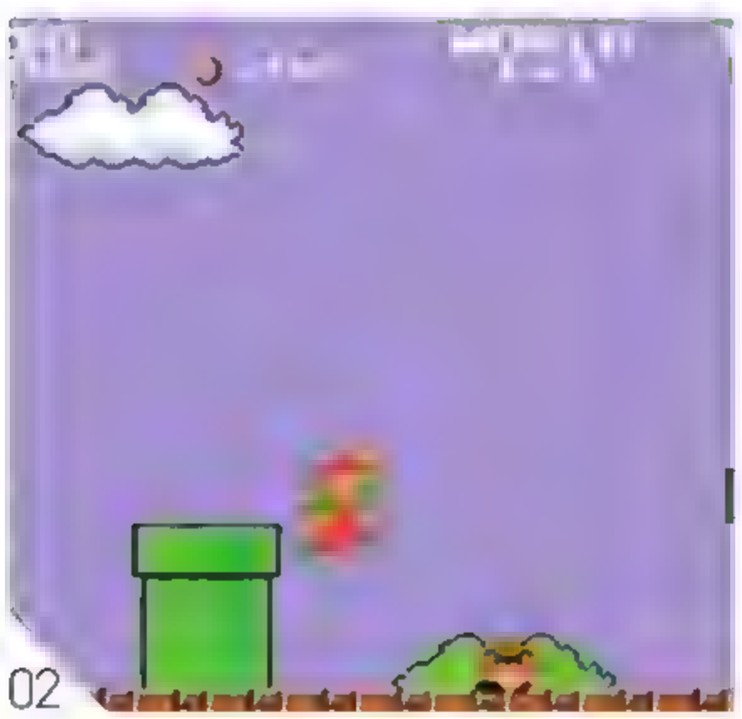
- **RELEASED:** 1984
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** DUNK SHOT

01 Billed as the quintessential game for the clunky NES Zapper, Nintendo's repetitive duck-murdering simulator allowed gamers to test their aim with the aid of canine cohort Mr Peepers. It was his job to startle a ball of petrified feathers into the air and yours to sight them in your pistol's crosshair. You had three shots per target and the later levels, which included tiny clay pigeons, called for either a swift dead-aim or the cowardly act of pressing the gun barrel against the television. The game had a neat feature which allowed duck-welfare enthusiasts to control the direction of the fleeing birds with a second pad and save them from a good buckshot stuffing.

SUPER MARIO BROS

- **RELEASED:** 1985
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** F-ZERO

02 It was the block-punching, pipe-travelling exploits of two Italian plumbers that finally administered the medicine to the videogame crash of the Eighties, ridding it of the noxious aftertaste of Atari's *ET*. Shigeru Miyamoto knew how to conjure up golden game icons, and the Mario brothers are two of his most prolific. Placing the plumbers into a daring princess/mushroom rescue mission, inside a vivid, smooth-scrolling fantasy world, the game pioneered concepts such as level warping and head stomping. *Super Mario Bros* encapsulates everything that makes a game timeless: catchy theme, fluid gameplay, iconic characters and a hot princess.


02

RIVER CITY RANSOM

- **RELEASED:** 1989
- **PUBLISHED BY:** TECHNOS
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** DOUBLE DRAGON

03 Punch-bags meet sick-bags when Alex and Ryan receive a note from evil crime lord Slick informing them that their city is being held to ransom and Ryan's girlfriend has been abducted. Welcome to River City, a place of tongue-in-cheek humour, cartoon violence and hard-up vomiting freshmen. Using anything they can lay their fists on, our protagonists set about the streets, fighting through Slick's army of students. Their strategy: force them to 'barf', and pocket their loose change. *River City*'s unique fusion of a scrolling beat-'em-up and a subtle RPG make it a superlative NES classic.

MEGA MAN 2

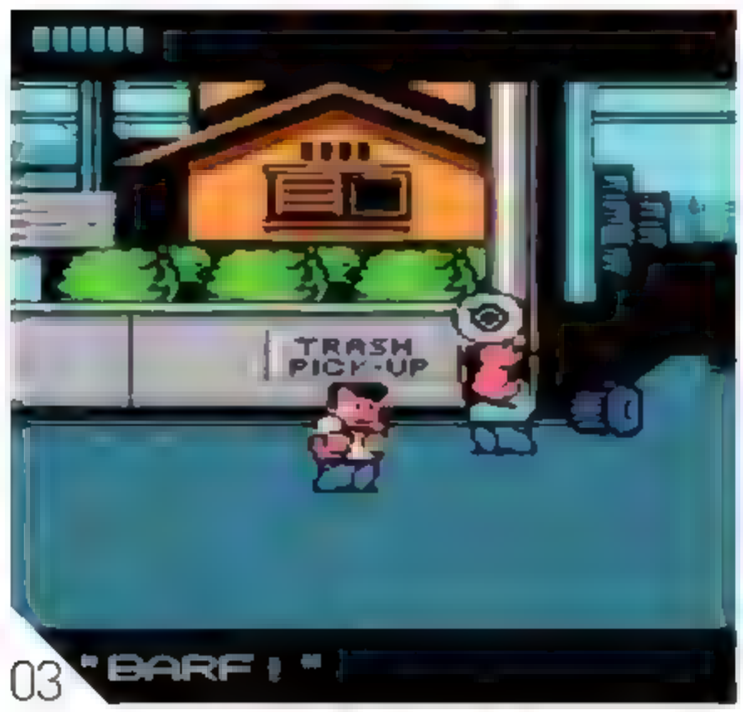
- **RELEASED:** 1988
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** CAPCOM
- **BY THE SAME DEVELOPER:** DEVIL MAY CRY

04 Don't let Mega Man's mountainous energy bar fool you. Trying to finish *Mega Man 2* is like trying to stay alive without any kidneys. This is an unforgiving platform blaster where each level demands pinpoint precision and patience. The order in which you blast through Dr Wily's levels is up to you, but don't think you can use the easier stages to stockpile lives. Each level houses a bionic boss whose special power can be acquired. These abilities give Mega Man an advantage over another boss, so choosing your route through the game was how you maintained a healthy blood pressure.

PUNCH-OUT!!

- **RELEASED:** 1988
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** WILD WARS

05 Nintendo's port of its popular Eighties arcade puncher was somewhat lost in translation when it appeared in its 8-bit glory. The arcade's transparent fighter was omitted and in his corner stood a pale, pint-sized pugilist on a mission to topple heavyweight hard-man Mike Tyson. It quickly collected acclaim for its accessibility and colourful roster of cartoon boxers, who were forced to sop up each blow of the game's trademark playability. The NES homes the finest version of *Punch-Out!!* still managing to pack more punch than its technically enhanced SNES sequel and arcade counterpart.



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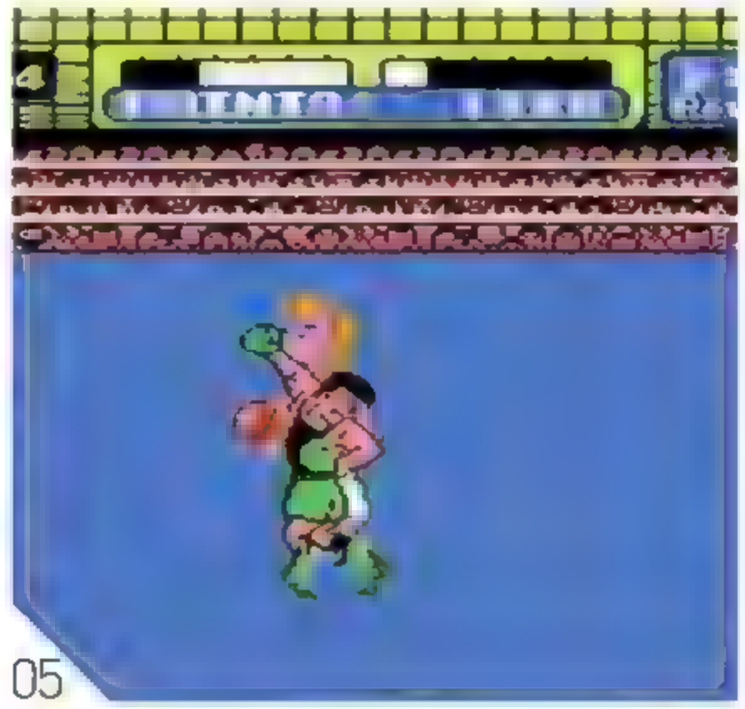
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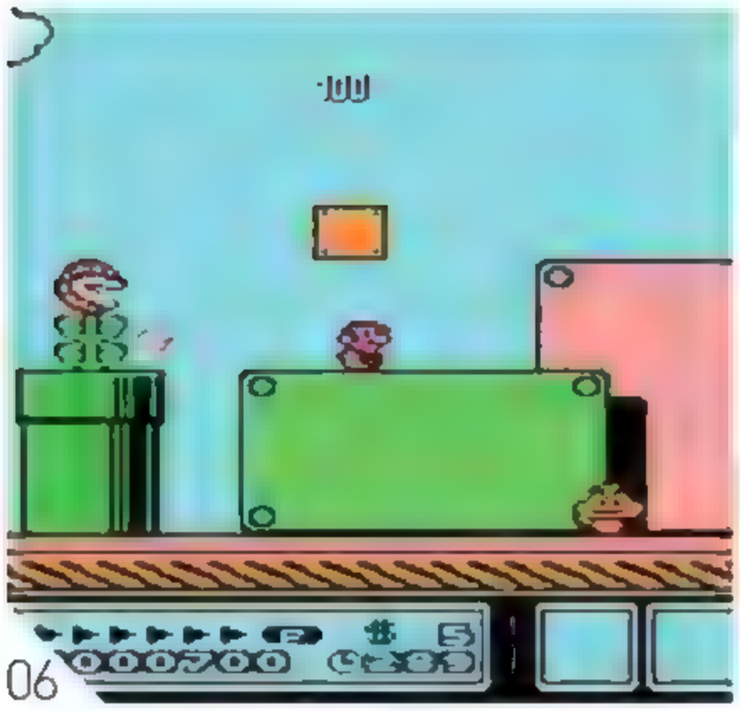

06

SUPER MARIO BROS 3

- **RELEASED:** 1990
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** PILOTWINGS

06 Mario's goodbye gift to the NES is a marvel. It encapsulated all the qualities of the first game while introducing new elements now as essential to the series as Mario's flat cap and black moustache. *Super Mario Bros 3* incorporated sub-bosses, multiple routes and mini-games while embracing the notions of secrets and level warping. In fact, the game's so great that millions of Americans stood in unity to create a large image of his head using colourful T-shirts. Visible from space it was a warning to ET to never release another game on our planet

07

METROID

- **RELEASED:** 1986
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** METAL GEAR

07 Long before Ms Croft raided her first tomb, there was another tough female playing a central role in an iconic franchise. Donning unflattering yellow armour and forced to wear a red spaceship on her head, you really couldn't tell whether Samus Aran was man, woman or beast. But one bash of the B button, sparking her elegant flip, gave us all the proof we needed. *Metroid* is a landmark NES title. The space shooter introduced password saves, non-linear levels and multiple endings. Its dark, menacing setting housed some truly freaky inhabitants, and the Giger-style levels really helped create a bleak, lonely atmosphere from inside the grey box

08

CONTRA

- **RELEASED:** 1988
- **PUBLISHED BY:** KONAMI
- **CREATED BY:** KONAMI
- **BY THE SAME DEVELOPER:** METAL GEAR

08 It must be written into our genes that when visited by an alien it's customary to either destroy them or try to adopt them. *Mario Bros* on steroids, the home port of Konami's arcade hit *Contra* is considered to be the finest run-and-gun on the NES. It tells the story of two marines who are assigned the mission of welcoming an alien species by unloading an ungodly amount of ammunition into their deformed domes. The game presents some inspired character and level designs, the most memorable being the breach of an alien base which switched the perspective from a side-scrolling blaster to a *Cabal*-style shooting gallery

09

DOUBLE DRAGON II: THE REVENGE

- **RELEASED:** 1989
- **PUBLISHED BY:** TECHNOS
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** N/A

09 Taking on a darker tone than its predecessor, *Double Dragon II* still follows the theme of the Lee brothers' ill luck with the opposite sex. After an abducted girlfriend, Marian, is callously killed by Shadow Warrior, the brothers are forced into action. It's widely considered to be the finest of the three *Double Dragon* games released on the NES, due to its intuitive controls. It also introduced a much-requested two-player co-op option and iconic moves like the Whirlwind Kick and the Hyper Uppercut – which looked a lot cooler than Billy and Jimmy's usual technique of pushing an enemy's head into their groin

THE LEGEND OF ZELDA

- **RELEASED:** 1987
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** YOSHI'S ISLAND

10 Sheathed inside a majestic gold cartridge, *The Legend Of Zelda*'s tale of a nefarious powermonger, an ensnared princess and an elfin boy, bound together by unlikely heroism, was a chameleon of game genres that pioneered open-ended gameplay. Link's first quest not only popularised adventure games, it established pivotal precedents that spoke out to all platforms. It outmoded high-score tables by exposing a greater desire in gamers for exploration and completion, and encapsulated perhaps the most respected and well-loved games ever created. It was fathered by Nintendo with a proud tenderness and the NES was there to videotape the birth

10

Year released: 1986 (US), 1987 (UK and Japan)

Original price: £99 (Core Pack)

Buy it now for: £15+

Associated magazines: *Mean Machines, Computer & Video Games*

Why the Master System was great: With a far brighter colour palette than Nintendo's NES and some superb arcade conversions, the Master System proved to be a cracking purchase if you were a die-hard Sega fan

RETROINSPECTION

MASTER SYSTEM

SEGA MAY NOT COMPETE IN THE HOME CONSOLE ARENA ANY MORE, BUT ITS MASTER SYSTEM ARGUABLY PLAYED A SIGNIFICANT ROLE IN INTRODUCING MANY GAMERS TO THE CONCEPT OF THE 'HOME ARCADE'. DAMIEN MCFERRAN TAKES A FURTIVE LOOK AT ONE OF SEGA'S FIRST FORAYS INTO THE DOMESTIC HARDWARE MARKET

The Sega Master System is something of an enigma. One of the most powerful home consoles of its time, the machine is barely worthy of a footnote when it comes to deconstructing the history of the American and Japanese gaming industries. It sank almost without trace in these two key territories, failing to make even a dent in the seemingly impregnable armour of Nintendo's NES (or Famicom). However, in other parts of the world – most notably Europe and South America – it was a tremendous success, winning hordes of fans and establishing Sega's reputation as a first-rate purveyor of arcade smash hits in the process.

Founded in 1940, Sega (an abbreviation of 'SErvice GAmes') initially gained renown for its unique brand of automated coin-operated arcade games. Having plenty of experience in the field of amusements, the company was perfectly poised to compete when 'true' arcade titles like *Pong* and *Space Invaders* started to appear. Thanks to games like *Future Spy* and *Zaxxon*, Sega soon garnered a reputation as something of an expert when it came to arcade thrills and spills.

As the Eighties began to unfold, the videogame industry seemed unstoppable. Encouraged by the sterling performance of its coin-op division, and the sheer amount of money American company Atari seemed to be making from the VCS/2600, Sega decided to enter the home entertainment arena. Released in 1983, the SG-1000 was Sega's first attempt at cracking the console market. However, it was not the triumph the company had hoped for. To make matters significantly worse, Atari managed to successfully flush the US home videogame market down the toilet in the same year, causing the first worldwide videogame crash. Sega's assets were hit badly in the ensuing fallout, but salvation came from American David Rosen, who had previous ties with Sega, and Japanese businessman Hayao Nakayama. These two men stopped the firm from collapsing into the gaping hole created by Atari's poor management.

After a period of stabilisation, Sega was purchased in 1984 by Japanese corporation CSK and subtly re-christened 'Sega Enterprises'. Despite the abject failure of the SG-1000, plans were made for a successor in the shape of the updated SG-1000 'Mark II'. Sega, like fellow Japanese company Nintendo, knew that although the

INSTANT EXPERT

A clone of the SG-1000 Mark I was produced by Telegames that could also play Colecovision software.

The Master System possessed a pair of 3D glasses that simulated depth of vision by using a shutter system on the right and left lenses.

The Power Base converter allows you to play Master System games on a Mega Drive console, although it acts only as a 'pass through' device – as all the necessary hardware to run Master System software is already included inside the 16 bit machine.

The first SG-1000 did make it out of Japan, albeit in small quantities. It was distributed in Italy and Spain as well as a few other countries.

The Japan-only computer SG 3000 is actually a SG 1000 Mark II with a built-in keyboard. A keyboard could be added to the SG 1000 to bring it in to line with the SG-3000.

Tec Toy released several games in Brazil, like *Street Fighter II* and *Dynamite Headdy*, long after the Master System had ceased to be a force elsewhere in the world.

The Brazil-only Master System Compact uses a wireless RF signal to connect to the television. A pink version was also released called the Master System Girl.

The final commercial Japanese release for the Master System/Mark III was 1989's *Bomber Raid*.

Built-in software was often a feature of Master System hardware, with games such as *Hang On*, *Alex Kidd In Miracle World*, *Sonic The Hedgehog* and the famous 'hidden maze game' – turn on the machine without a cartridge in the slot and press up and both buttons at the same time – all being included inside different variants of the console.

Sega first used Opa-Opa from *Fantasy Zone* as its mascot, but Alex Kidd was soon drafted in as a replacement. Kidd was popular – there was even a Japanese board game based on his exploits – but he, too, would be dropped in favour of a certain blue hedgehog.

RETROINSPECTION

MASTER SYSTEM

» Some early titles were released in both cartridge and card forms, with the latter usually being sold at a budget price. As games became bigger the card format was eventually dropped due to insufficient memory

» The SG-1000 and SG-1000 Mark II – the forefathers of the Master System.

crash of 1983 had damaged confidence in the videogame industry, it had created a void that simply begged to be filled – in Japan, at least. The Mark II struggled to shift units at retail, but this hardware would eventually evolve into 1985's SG-1000 'Mark III'. Bar a few technical differences, this was the Master System in all but name

It was around this time that Sega's rivalry with Nintendo, which would later bloom into a full-scale war when the Mega Drive and SNES arrived on the scene, became apparent. Sega's machine was more powerful than Nintendo's, but when the Mark III and Famicom went head-to-head in Japan the former was given a rather humiliating beating. Nintendo's popular console trounced Sega's technically superior hardware thanks to a wealth of third-party support. Developers were infamously forced to agree that they would not publish their NES titles on rival hardware, which left Sega in a rather tight predicament – it could only rely on its own home-grown arcade titles for so long. The solution was to obtain the rights to 're-program' the games of other developers – a process that PC-Engine creator NEC also indulged in, ironically converting many of Sega's key arcade hits to its own 8-bit format – but even this strategy wasn't perfect. Many of the licensed titles were distinctly lacklustre compared to the 'cream of the crop' that the NES enjoyed

Undeterred by the underwhelming performance of the Mark III on home soil, Sega decided to release the hardware in the US, where it was radically re-styled and rebranded as the impressive-sounding 'Master System'. Released in 1986 – a year after Nintendo performed the same trick with the Famicom, which became the big loveable slab of grey plastic known as the NES – the Master System found itself in a similar predicament to the one experienced in Japan. Nintendo had spent the previous year busily promoting its new console and had snapped up key developer support from Capcom, Konami and Taito. Again, Nintendo requested that developers keep their games 'NES exclusive', and given the unassailable position the console enjoyed, few had the will to defy this request. Despite possessing technically superior hardware, Sega had, unfortunately, come to the party too late, with the Master System also crippled by a meagre software library. Compared to the multitude of third-party developers that supported the NES, Sega was only able to call upon the allegiance of two in the US: Activision and Parker Brothers.

By 1988, Sega's Japanese overlords had decided that enough was enough. Keen to offload the under-performing console, the questionable decision was made to sell the US distribution rights to toy firm Tonka. While the company was the undisputable king of the bright yellow plastic digger, it, sadly, had no experience whatsoever of effectively selling a cutting-edge electronic entertainment system. Tonka immediately made some puzzling choices regarding software choices and vetoed the localisation of several key titles, many of which were selling like hot cakes elsewhere in the world. Compared to the stunning collection of software available on the NES, the result was something of a foregone conclusion. Despite Tonka taking over the distribution duties, the Master System continued to perform poorly and was all but ignored by American gamers.

A rather pointless Japanese release of the Master System hardware followed in 1987, with the console being treated with the same level of disdain as its predecessor – unsurprising when you consider that it was effectively the same machine that had been released to general apathy in 1985. It was eventually discontinued in Japan two years later. Any other company would have capitulated in the face of such a dismal performance, but Sega wasn't about to give up without a fight. Carefully scanning the globe for possible conquest, the stubby finger of fate fell on Europe – the one region where Nintendo's influence had yet to be felt. Nintendo had released the NES in Europe towards the end of 1986, but poor promotion coupled with a lofty price point meant that the market penetration enjoyed by the machine was decidedly unimpressive. Sega saw the opportunity and pounced.

Ably distributed by UK company Mastertronic – previously famous for releasing budget games for the 8-bit home micros – the European variant of the Master System was unleashed in time for Christmas 1987. Spurred on by adverts that promoted the console as 'an arcade in the home', and supported by a range of killer co-op

> "ANY OTHER COMPANY WOULD HAVE CAPITULATED IN THE FACE OF SUCH A DISMAL PERFORMANCE, BUT SEGA WASN'T ABOUT TO GIVE UP WITHOUT A FIGHT"

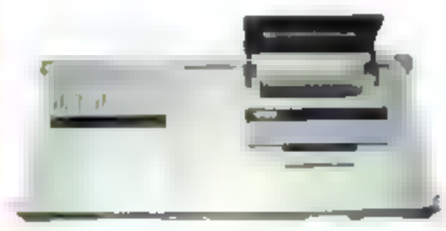
Bundle of Joy

If you thought the current confusion over Xbox 360 and PS3 bundles was a new occurrence in the console industry, think again. Back in the late Eighties, the Master System was produced in three different packs: the 'Base System' (think '360 Core' and you're on the right track), the 'Plus' system which added the all-important Light Phaser, and the 'Super System' which was the same as the 'Plus' but also added the short-lived 3D Glasses. Although the existence of these different bundles undoubtedly resulted in several youngsters feeling inadequate when they got the 'Base' unit for Christmas, the peripherals that were included with the more expensive packs were not convincingly supported. The Light Phaser only enjoyed a handful of games and the 3D Glasses were dropped altogether when the Master System II hit the market – the lack of a card slot meant the remodelled console could not support the unique add-on.

OTHER VERSIONS – WHEN ONE MACHINE ISN'T ENOUGH...

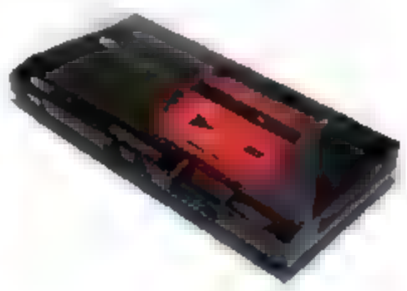
SG-1000 Mark III

Only released in Japan, this was the precursor to the Master System and is almost technically identical, although the FM sound chip in the Master System was an optional extra with the Mark III. Because it faced off against Nintendo's Famicom in Japan, it didn't sell particularly well and was swiftly dropped when the Mega Drive hit the market.



Master System (Mk I)

The 'classic' machine. The attractive casing features a slot for card-style games and also allows you to use the 3D Glasses. Although it's possibly the most well-known design in fan circles, it's actually harder to track one of these down in the wild than you'd imagine, because of this, second-hand prices are on the rise.



Master System II

A revision that allowed Sega to manufacture the machine more cheaply, the Master System II lacks the card slot that the original machine had. The design isn't fantastic but it's a lot smaller than its predecessor. This is probably the most common variant of the console in the West and can be found with ease at most car-boot sales.

Game Gear

Released to compete with the Game Boy, it was essentially a portable Master System. Many of the games were ports of home titles and the machine was even able to play Master System carts thanks to the 'Master Gear' converter. The Game Gear was battery hungry and suffered from a blurry screen – two factors that resulted in its downfall.

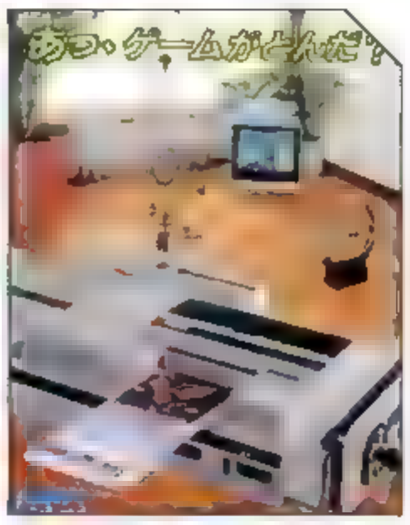
COMMUNITY – SEGA WEBSITES TO WATCH

Sega8bit
www.smstributes.co.uk
One of the best Master System websites, here you'll find heaps of content including reviews forums, hints on where to purchase a system and even regular competitions. A clean, neat and easy-to-navigate design rounds things off nicely. Highly recommended if you find yourself bitten by the Master System bug

Sega Master System Museum
alexkidd.com
Although it's not updated particularly often, this is an excellent site for information and features a design that complements that of the original Mk I console. It's also packed with loads of reviews and represents a handy one-stop resource for fans of the machine

SMS Power!
www.smspower.org
The home of a group of Master System fans dedicated to preserving and documenting the history of their beloved system The site has been around since 1997 and continues to perform valuable work in regards to keeping the memory of the console alive. Check out the excellent scan archive!

The Sega Master System Junkyard
segams.blogspot.com
A blog that takes a rather witter look at Sega's classic conso e than the other sites here. Within the Junkyard you'll find links to a variety of amusing content, and unlike the vast majority of Master System fan sites out there, this looks to be getting regular updates – which is nice



» The Mark III came with a dazzling range of peripherals – none of which helped it in the fight aga nst the Famicom

» US Gold provided admirable support for the European Master System

classics such as *Hang On*, *OutRun*, *After Burner* and *Space Harrier*, the Master System quickly mopped up the market share that Nintendo had been too slovenly to secure Gamers weaned on the Spectrum and C64 suddenly saw the attraction of owning a home conso e – rather than playing bumbling, half-arsed conversions of their favourite arcade hits by Western companies only concerned with cashing in on popular titles, fans could indulge in highly accurate ports produced by Sega itself "The Master System raised the bar in terms of arcade-style home gaming," explains Neil West, former editor of *Sega Power* magazine. "The hardware was a leap forward from the home computer systems we'd all been used to." It was with the Master System that many UK gamers experienced instantaneous load ng – an astonishing revelation after years of wait ng for tapes to load on the home computers

Such was the success of the machine that Mastertronic soon found that the Master System was accounting for nearly its entire yearly turnover Such spectacular performance attracted the attention of Richard Branson's Virg n, who eventually acquired the firm, which was renamed Virgin Mastertronic, and, therefore, the European distribution rights to Sega's hardware and software It was a timely intervention and a shrewd business move, as the Master System's successor was on the horizon and it would prove to be even more successful

When the Mega Drive/Genesis was released, it spelt the end for the Master System in the US and Japan, despite a remodelled alternative appearing in the shape of the Master System II. Sega reacquired the US distribution rights for its products from Tonka, and set about promot ng the new-look Master System, possibly in the hope that the frenzied public interest in the 16-bit Genesis would somehow trickle down to its 8-bit stablemate Sadly, it wasn't to be, and the f na game to be published in the US was *Sonic The Hedgehog* in 1991 Compare this to Europe, where the Master System II was a big success and helped the format cl ng on to its significant market share. As the Mega Drive started to gather momentum, Sega Europe wisely kept the 8-bit console ticking over with a drip-feed of quality titles like *Streets Of Rage II*, *Mercs* and *Sonic 2*. Support finally died away in the mid-Nineties

Another market where the Master System enjoyed almost unchal enged success was Brazil. Traditionally a region where conso e technology trails that of the US, Europe and Japan, the machine was released in 1989 but rema ned wildly popular well into the following decade, marketed with impressive skill by Tec Toy The company even went as far as to release a wireless variant of the Master System hardware, dubbed 'The Compact'

When you consider this rather sketchy history, which saw the Master System fail catastrophically in two of the three key worldwide markets, it begs the question: is the console really worthy of a reassessment? The answer is simple. Without th s criminally undervalued machine, Sega would not have enjoyed the considerable success it had with the Mega Drive. The Master System allowed Sega to experiment with arcade conversions original IP and even create a mascot in the form of the loveab e monkey boy Alex Kidd Without the Master System, we also wouldn't have *Phantasy Star* – one of Sega's most well-known and best-loved franchises. Developers like Yuji Naka and Naoto Oshima cut their teeth on Sega's 8-bit hardware. Although it couldn't boast the sheer volume of classic titles possessed by Nintendo's NES, the Master System is still worthy of praise. Those gamers willing to stick with their machines back in the late Eighties were treated to a commendable selection of games, including *Wonderboy III: The Dragon's Trap*, *Psycho Fox*, *Power Strike* (aka *Aleste*), *Golvellius*, *Phantasy Star* and many, many others

The fact that Sega was so dominant in the coin-op arena also meant that the machine played host to some commendable ports, as Neil West reveals: "The console came at a time when Sega enjoyed huge influence and power in the coin-op world, which meant a lot of games were available for conversion." Although it could be argued that the promise of 'an arcade in the home' wasn't fulfilled until the advent of the Mega Drive, the Master System nevertheless created a solid foundation to build on and gave gamers an insight into the fascinating world of Sega. This was a company that in the subsequent years would scale the heights of the world videogame industry, only to fall from grace in spectacular fashion almost as rapidly In that respect, the Master System serves as a remarkable historical piece – with this much-maligned console, Sega tentatively tested the waters that it would ultimately flounder in

» These promotional booklets were bundled with Japanese releases

» Towards the end of its life the Master System played host to some ambitious conversions - some far more successful than others

» A 'Card Catcher' was needed to play card games on the Japanese SG-1000 Mark II

MASTER SYSTEM

PERFECT TEN GAMES

It was home to the ugliest game cartridges, was cased in the most god-awful package design that you could imagine, but boasted some cracking games nonetheless. Join **Retro Gamer** as we look back at ten Master System games that you can't possibly be without

01

02

03

04

PSYCHO FOX

- **RELEASED:** 1989
- **PUBLISHED BY:** SEGA
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** CRAZY TAXI

01 It's not the greatest platformer ever made, but it was one of the few Master System titles that became synonymous with the system. And any game about a fox battling a god has to make it onto some kind of list. Apparently the prequel to the awesomely entitled *Magical Flying Hat Turbo Adventure*, which later became known as *DecapAttack* in the West, *Psycho Fox* is a wonderfully vivid platform adventure that's quite a bugger to master. Boasting *Mario*-style warping and the funniest attack in any videogame ever: a punch that looks a little like Psycho Fox is continually getting enamoured and knocking things out with something that resembles a hairy slowworm chewing on an apple. We'll let you guys fill in the blanks.

ALEX KIDD IN MIRACLE WORLD

- **RELEASED:** 1986
- **PUBLISHED BY:** SEGA
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

02 The coolest videogame character ever was doing the heavy-fringed, shell-suited look long before the words 'our' and 'kid' were annoyingly put together. Living inside the Master System II, this game would be hailed as the greatest freebie in videogame lore until *Christmas NiGHTS* was given away with a magazine, and by default became the console's quintessential platformer. Big-fisted Alex Kidd must traverse imaginative worlds to compete in the Paper, Scissors and Stone World Cup. He's up against competitors that have had intense plastic surgery to make themselves look like a piece of paper, a pair of scissors and a fleshy rock, in the hope it will give them an edge in the competition. Jerks.

OPERATION WOLF

- **RELEASED:** [illegible]
- **PUBLISHED BY:** SEGA
- **CREATED BY:** TAITO
- **BY THE SAME DEVELOPER:** BUBBLE BOBBLE

03 Taito was faced with the very difficult decision of which direction to steer this project in. It could either take the veterinary arcade simulator route with an emphasis on saving wolves, or create a game about one man with a gun taking on a coconut shy of angry soldiers while helping to liberate terrified hostages. Taito decided to roll with the latter option – the correct decision, we reckon. With the Master System's chunky Light Phaser controlling your shooting and a second pad providing the trigger for your grenade attacks playing the game while sitting on a tumble dryer – thus replicating the sensation of the arcade cab's recoil – all made for a really great home conversion of this warfare classic. Quite possibly the Master System's finest arcade conversion.

CALIFORNIA GAMES

- **RELEASED:** 1988
- **PUBLISHED BY:** SEGA
- **CREATED BY:** EPYX
- **BY THE SAME DEVELOPER:** [illegible]

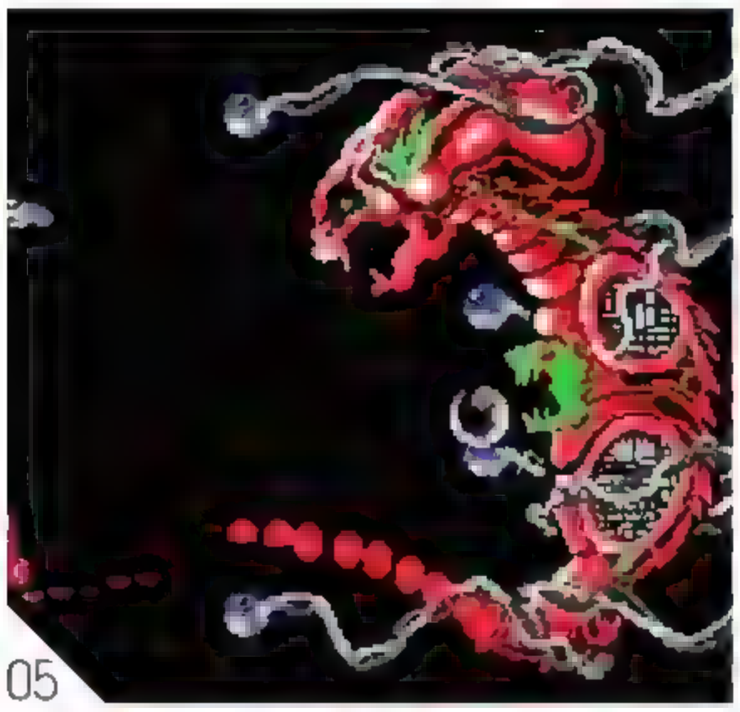
04 The 8-bit consoles weren't really renowned for their fantastic sporting titles, and the Master System had some of the worst examples on any system. If anyone has ever been unlucky enough to play any of the machine's 'Great' series of sports titles (*Great Football*, *Great Soccer*, Great juxtaposition of the word Great) you'll know exactly where we're coming from. And don't even get us started on *Basketball Nightmare*. However, you may well remember the Earth tilting slightly on its axis after the release of Epyx's brilliant *California Games*. While playing through the game's six events had a tendency to make you feel like one of those annoying kids from *Saved By The Bell*, in its own goofy way it offered a nice slice of sun-kissed sporting action, and it looked fantastic to boot.

R-TYPE

- **RELEASED:** 1987
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IREM
- **BY THE SAME DEVELOPER:** IN THE HUNT

05 The force is strong in this conversion. Irem's classic side-scrolling blaster is still one of the finest examples of the genre. Apart from the annoying flickering of the enemy characters the Master System port offers an incredibly faithful reproduction of the game's stunningly bleak Giger frames and its myriad of bullet-spewing enemies. *R-Type* is teeming with memorable sections, but arguably the most iconic is the encounter with the game's first boss, Dobkeratops. When those lights faded and you encountered death's alien glare in the form of an ugly-looking giant shrimp, you knew those Bydo boys weren't the type of evil intergalactic federation to just roll over and hand you the keys to their demise. A utterly fantastic conversion that even boasts its very own secret level.

PERFECT 10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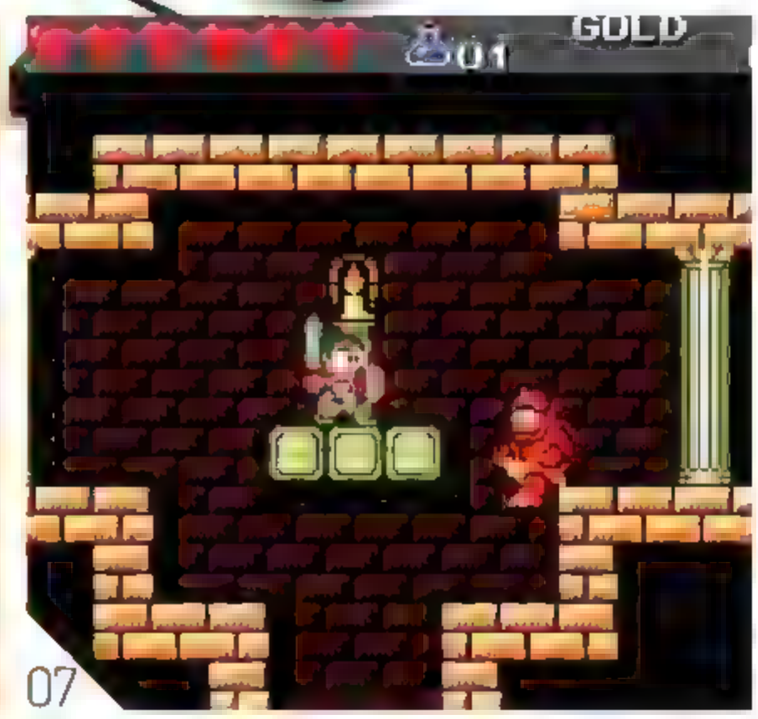

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BAKU BAKU ANIMAL

- **RELEASED:** 1998
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** SPACE HARRIER

06 Yes, it's another tried and tested take on *Tetris*, but Sega's excellent *Baku Baku Animal* was a puzzle game that finally gave those faceless regimented sprites a touch of character. The falling tiles were made up of either types of food or animal faces, and the aim was to simply bunch the falling groceries together and get the corresponding animals to consume them. So the dogs were grouped with the bones, the monkeys with the bananas, the rabbits with the carrots and the pandas with the... well, we're sure you get the idea. It's an incredibly enjoyable little puzzle game that is also extremely addictive. It certainly cocks a leg and whizzes over the Mega Drive yawn-fest that is *Columns*. Arguably the Master System's best puzzler

WONDER BOY III: THE DRAGON'S TRAP

- **RELEASED:** 1989
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** [illegible]

07 Regarded as the best in a long and highly convoluted myriad of multi-titled games, *Wonder Boy III: The Dragon's Trap* was another addition to this stable of run-'n'-jump-cum-adventure-type outings. This one is the most finely tuned in terms of gameplay and despite its length it somehow maintains a great pace throughout. Within its first few minutes you enter a castle, blind some cyclops, uncover a strange dungeon and battle a dinobot that turns you into a dragon with its dying breath. After that you're turned into a variety of different animals, which gradually allows you to explore the huge game world. A great adventure that every Master System fan needs to own

PRINCE OF PERSIA

- **RELEASED:** 1992
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

08 You have 60 minutes to find a way through this Persian rat-maze to try to stop the evil Grand Vizier Jaffa from marrying your girlfriend and fooling around with her on a giant, rotating heart-shaped bed. This will be no easy feat, however as the route is precarious and the pitfalls are plenty. But with a game so fluid and colourful, seeing your Arabian protagonist drop a thousand feet and hit the ground like a sack of potatoes was one of the most charming-looking deaths on the Master System. This conversion – like all the rest – looks great. The only bad point to be found is that the Master System's doughty D-pad isn't really a fan of precision. It's still a cracking platformer, though, and is arguably one of the greatest on the system. If only it wasn't so hard

SONIC THE HEDGEHOG

- **RELEASED:** 1991
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** [illegible]

09 Up, down, left, right, A, B, C, Start, sadly proved impossible to perform on the Master System's cumbersome control pad, but the most well-known level-select cheat ever wasn't the only thing that was altered for the Master System port. Due to the graphical 8-bit chasm that presented itself *Sonic*'s first – and second, for that matter – outing on the system was a complete overhaul of its 16-bit sibling. However, the Master System version was all the better for it and proved to be a stunning platformer in its own right. It also meant that those who owned both a Master System and a Mega Drive would be treated to two slightly differing classic *Sonic* adventures. Now surely that can only ever be seen as a very good thing?

PHANTASY STAR

- **RELEASED:** 1988
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** RISTAR

10 Sega's freshman RPG epic would smite its first winged eyeball on the Master System. There's a tiring amount of features, strategy and powering-up in the game, and the 3D tunnel effects were dazzling. *Phantasy Star* was a more than worthy sparring partner to Miyamoto's prevalent *Zelda* and Square Enix's *Final Fantasy* series, mainly because it chose a setting that was instantly at odds with the generic fantasy worlds of *Zelda* and *Final Fantasy*. It's a beautifully constructed game, boasting a fantastically epic planet-hopping storyline polarised around one girl's quest to seek revenge for the untimely death of her nosey brother. However, unlike Sega's sophomore retribution epic, the original *Phantasy Star* doesn't pick up its football and disappear home in the 89th minute

Year released: 1987 (Japan)

Original price: $200 (US TurboGrafx-16), $250 (US TurboDuo)

Buy it now for: £25-£30 loose (original white PC Engine), £60-£100 (Duo)

Associated magazines: *Turboforce*, *DuoWorld* (US); *Marukashi PCE*, *Gekkan PCE* (Japan)

Why the PC Engine was great... It was no bigger than a packet of crisps and played host to some truly awe-inspiring arcade conversions, as well as being responsible for some amazing technical innovations – it was the first home console to exploit the medium of CD-ROM, for example. A system with more hardware iterations than most people have had hot dinners, the convoluted PC Engine family tree would give even the most ardent genealogist a serious headache, yet it remains close to the hearts of hardcore gamers worldwide thanks to its lustrous design and dazzling range of first-class software.

RETROINSPECTION

PC ENGINE

INCREDIBLY SUCCESSFUL IN THE LAND OF THE RISING SUN AND A FIRM FAVOURITE WITH WESTERN IMPORTERS, NEC'S PC ENGINE IS NOW 20 YEARS YOUNG. TO CELEBRATE THIS EVENT, DAMIEN MCFERRAN PULLS ON HIS BEST TIME-TRAVELLING TROUSERS AND FLINGS HIMSELF INTO A WORMHOLE, HOPING TO EMERGE UNSCATHED IN 1987...

Western gamers tend to consider Nintendo and Sega as the two major players in the 16-bit console war. On European and American soil this was certainly the case, with the Super Nintendo and Mega Drive battling it out for supremacy. The story was slightly different in Japan, however. Nintendo remained amazingly successful but it was NEC's PC Engine that emerged as its main rival, leaving Sega to make do with a disappointing third. Remarkably, this popular Japanese console struggled in the US and bypassed Europe altogether. Unravelling the complex lineage of this intriguing system isn't straightforward thanks to numerous hardware amendments, name changes and add-ons – not to mention the involvement of three different parent companies – but, by thunder, we're going to try.

Back in the late Eighties many companies – both inside and outside the videogame industry – observed the runaway success of Nintendo's NES/Famicom with mounting envy. One such corporation was Japanese electronics giant Nippon Electric Company, more commonly known as NEC. Established at the turn of the 20th Century to produce telephone components, NEC had gone on to become one of the world's leading computer manufacturers. A new conquest was beckoning in the form of the lucrative console market, and while NEC undoubtedly had the financial clout to enter this arena, it lacked vital industry experience. Approaches were made to several leading videogame studios for support, and it was soon discovered that Hudson Soft – the first developer to obtain a licence to develop for the Nintendo Famicom – also happened to be tentatively exploring the possibilities of producing its own system.

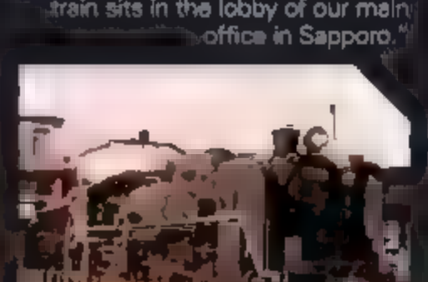
Founded by brothers Yuji and Hiroshi Kudo in 1973, Hudson didn't start out in the field of interactive entertainment. "They originally began by selling telecommunication devices and some art photographs," comments John Greiner, president of Hudson Entertainment in the US. "Within two years they began selling computer-related products and soon afterwards, the company started to make games. In fact, they were the first to publish a PC game in Japan." Hudson had created the high-powered LSI chipset but didn't possess the necessary cash to enter the console race alone. "They realised they needed a partner to manufacture and market to a large base. Fortuitous timing landed NEC as a company that was interested in entering the console market." This highly promising union would result in one of the most successful and influential Japanese consoles of all time.

SMALL IS BEAUTIFUL

In terms of aesthetics, the PC Engine must surely rank as one of the most iconic designs in the history of electronic entertainment. The original white system was

Trainspotting

Hudson founders Yuji and Hiroshi Kudo happen to be massive fans of locomotives, even going as far as to name their company after one. "The name was inspired by the Hudson train – a type of steam locomotive used primarily in America – which was a childhood favourite of the brothers," recollects John Greiner. "The train used to run through the Japanese town where the boys grew up. The year the company started, that train was decommissioned. After Hudson's financial success, the brothers bought the train and had it restored. It ran its route of yesteryear through their hometown and became a big tourist attraction. In fact, over the years, the Hudson train has become part of the Hudson company mythos. At one point, Hudson's research centre had a miniature rideable replica of the Hudson locomotive that ran through the building, and to this day, the front mantle of the Hudson train sits in the lobby of our main office in Sapporo."

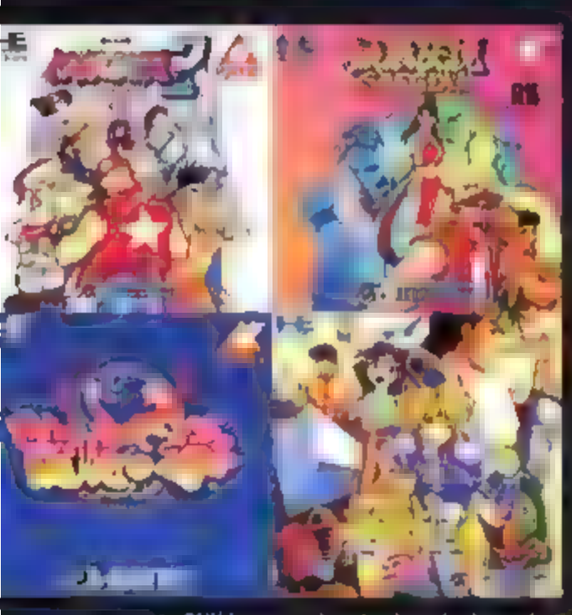


"WHILE NEC HAD THE FINANCIAL CLOUT TO ENTER THE CONSOLE ARENA, IT LACKED VITAL INDUSTRY EXPERIENCE"

RETROINSPECTION

PC ENGINE

» The complete SuperGrafx library in all its glory. Superb ports of *Daimakaimura* and *1941* are balanced out by some truly dire original titles.



» SNK fans were happier than pigs in muck when the Arcade Card was released – these admirable ports made use of the increased RAM the card bestowed.

» John Greiner, president of Hudson Entertainment in the US.

petite and attractive, making rival consoles look positively ugly in comparison. "Hudson and NEC wanted to create a system that was appealing in design," Greiner continues. "The previous generation of consoles felt more like toys, so they wanted to create a system that was sleek yet powerful." With dimensions of 135x130x35mm, it remains the smallest home console ever made. This appeal was further augmented by the unique delivery system for software, as

ironically they frequently outclassed Sega's own efforts on the Mega Drive.

With a successful launch out of the way, NEC soon set about creating what would be the first of many hardware updates: the 'CD-ROM2' add-on. "At the time, publishers were constrained by the cost and memory of carts," Greiner remembers. Released in 1988, the CD-ROM2 came with a fetching briefcase-style setup and remains one of the most desirable pieces of PC Engine paraphernalia for collectors. Early CD software was hampered by lack of RAM, but this was thankfully rectified via a series of 'System Card' updates, which came in HuCard form and granted more usable memory. This, in turn, gave birth to the renowned 'Super CD' criterion, which allowed programmers to be more flamboyant and really put that additional CD storage space to meaningful use. "NEC and Hudson were driven by what a CD could bring to gaming

"WITH A SUCCESSFUL LAUNCH OUT OF THE WAY, NEC SOON SET ABOUT CREATING WHAT WOULD BE THE FIRST OF MANY HARDWARE UPDATES: THE 'CD-ROM2' ADD-ON"

Greiner recalls: "The PC Engine used a unique chip-on-board media instead of cartridges. These credit card sized HuCards, or Turbochips as they were called in America, were marvels in design. They were extremely durable, portable and cool."

The slender size of the machine belied the impressive technical specifications contained within. The custom-built dual 16-bit graphic processors (HuC6260 and HuC6270A) allowed the PC Engine to display stunning arcade-quality visuals. Remarkably, the unique HuC6280A CPU that powered this minuscule wonder was 8-bit – a fact that would provoke many playground arguments about whether or not the machine should be classed in the same league as true 16-bit consoles like the SNES and Mega Drive.

NEC launched the PC Engine in Japan on 30 October 1987 and by the end of the subsequent year it was the bestselling console in the country, dethroning the Famicom in spectacular fashion. One of the key reasons for this triumph was impressive third-party support which previous consoles like Sega's Mark III – known as the Master System in the West – had struggled with, largely thanks to Nintendo's stranglehold over software developers. Striking technical specifications combined with the rampant enthusiasm shown by NEC and Hudson – two highly respected companies in Japan – encouraged many developers to support the console.

Namco, Irem, Masaya, Konami and Human all flocked to the PC Engine banner, bringing some of their most treasured franchises with them. Amazingly, permission was also secured to port several highly esteemed Sega coin-ops, including *After Burner II*, *Power Drift*, *Space Harrier*, *OutRun*, *Wonderboy III* and *Fantasy Zone*. These were proficiently reprogrammed by internal studio NEC Avenue – later known as NEC Interchannel, and more recently Interchannel-Holon, as the company is no longer affiliated with NEC – and

amazing sounds, robust animation, and seemingly unlimited storage space," confirms Greiner.

Commitment to largely unproven CD-ROM technology showed that NEC intended to remain on the cutting edge, but in 1989 this burning desire to innovate resulted in a near-fatal error of judgement.

» NEC reprogrammed several notable Sega coin-ops. Some would argue that the PC Engine versions eclipse the Mega Drive alternatives.

» Adverts like this one – taken from the pages of *C&VG* – helped whip up interest in the UK.

Despite the runaway success of the PC Engine, Nintendo's Famicom remained the console to beat and when solid information regarding the specifications of its successor began to surface in the Japanese press, NEC panicked. It rashly decided to launch a new console and the SuperGrafx was born. Essentially a PC Engine with additional graphic chips and four times as much RAM, this bulky machine was handicapped by the fact that it utilised the same 8-bit CPU as its older stablemate. Co-ordinating the extra chips created a massive drain on processing power and developers struggled

» Unsurprisingly, American box art was excruciatingly bad.

» Force feedback for your buttocks? The Virtual Cushion must rank as one of the most bizarre peripherals ever.

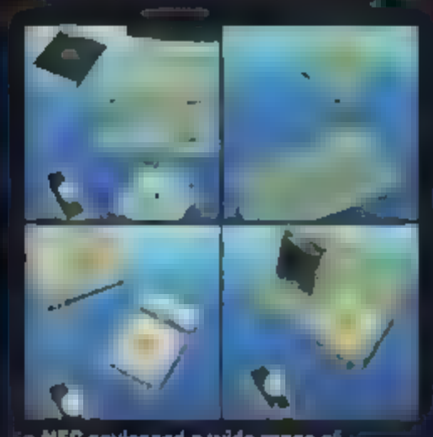
to achieve satisfying results. Incredibly, only five dedicated games ever saw the light of day, in addition to a 'hybrid' version of *Darius Plus* that would also play on a standard PC Engine. Thanks to an impressive conversion of Capcom's *Daimakaimura* – known to us as *Ghouls 'N Ghosts* – and excellent overall compatibility – it's able to play HuCard games and can be connected to the CD-ROM drive, making it the only machine in the PC Engine dynasty with the potential to play all available software – the SuperGrafx remains a highly sought-after collector's item, regardless of its abject commercial failure.

GO WEST

In spite of this slight hiccup, success for the PC Engine was virtually assured on home soil. With proven technology and a library of excellent games, it made perfect sense to unleash the console Stateside, as Greiner recalls: "The US market was stirred into a fevered state by fans wanting a true gaming upgrade from the 8-bit era." NEC's American arm rechristened the machine the 'TurboGrafx-16' and the external casing of the diminutive console was retooled in order to make it look more substantial and imposing. Nevertheless, the fortunes of the TurboGrafx-16 stood in stark contrast to that of its Japanese sibling. "The success of the PC Engine was undeniable in Japan, where at one point it captured nearly a third of the market," states Greiner. "In the US, however, it was a different story." Sega released the Mega Drive – renamed the 'Genesis' – in North America at almost exactly the same time and began relentlessly and ruthlessly marketing its new console, as Greiner remembers: "Sega were hard-hitting, gaining an irreverent edge, which best suited the US demographics." The early promotions for the Genesis were extraordinarily successful and the selection of available software – which not only included some of Sega's key arcade titles but was also more tailored to a Western audience – gave it the edge.

NEC's machine was lumbered with a very 'Eastern' assortment of games and Hudson struggled to craft titles that would appeal to US players. "It was a tremendous challenge launching so many games in such a short time frame," recalls Greiner. "That is why you initially saw so many games that were ported from Japan and from genres that were most popular in that country, like shooters." Nintendo's dominance over third-party developers became apparent once again, with American software companies being just as fearful of Nintendo's wrath as their Japanese counterparts. "Unfortunately,

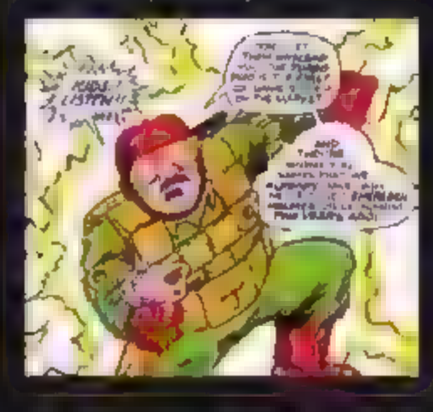
» Owning a PC Engine LT grants you access to the elite of collectors – the machine is rare and very expensive. You only need one kidney, after all.



» NEC envisaged a wide range of applications for its 8-bit wonder – sadly, most of these ideas were canned as it became clear that gaming was the future of the PC Engine.

Go Johnny, Go, Go, Go

To support the release of the TurboDuo, TTI commissioned a series of adverts featuring a freelance crime fighter named Johnny Turbo. Dedicated to defeating the nefarious forces of the malevolent Feka Corporation, Johnny used his special powers to educate the gaming populace of America about justice and truth – the truth being that the Feka system was not a dedicated 'all-in-one' CD system, like TTI's TurboDuo. The adverts were shoddily concealed attacks at Sega which had just released the Sega CD add-on for the Genesis. While Sega's promotional campaign was cool and original, the Johnny Turbo adverts were notoriously cheap and ever so slightly petty – the key issue being that Sega had never actually insinuated that the Sega CD could function without the Genesis. They have since become part of videogame folklore, with many gamers ironically remembering the adverts better than the product they ham-fistedly tried to promote.



"NEC'S MACHINE WAS LUMBERED WITH A VERY 'EASTERN' ASSORTMENT OF GAMES AND HUDSON STRUGGLED TO CRAFT TITLES THAT WOULD APPEAL TO US PLAYERS"

RETROINSPECTION

PC ENGINE

"IN JAPAN, THE AMAZING SUCCESS OF THE FRESHLY RELEASED SUPER FAMICOM PROVOKED NEC TO CONSOLIDATE THE EXISTING PC ENGINE HARDWARE IN THE FORM OF THE DUO SYSTEM"

Hardware History

Few machines can boast as many hardware upgrades as the PC Engine. From 1987 to 1994 NEC produced a massive range of systems based on the '87 technology. The original white console was restyled slightly in 1989 to create the CoreGrafx – technically identical but with AV output instead of RF. The CoreGrafx II followed in 1991 but was only cosmetically different from its predecessor. The same year saw the release of the 'Shuttle', which boasted a gimmicky design but bizarrely lacked the ability to connect to the CD-ROM2. The CD-ROM2 and Super CD-ROM2 add-ons allowed users to play cutting-edge CD titles, and the portable PC Engine GT and LT bestowed a modicum of mobility. The 'Duo' system also saw hardware revisions, the first being the Duo-R (1993) that had a different case and more streamlined components. The Duo-RX (1994) proved to be the final throw of the PC Engine dice and was identical to the Duo-R, save for the bundled six-button joypad.

ESSENTIAL WEBSITES

www.pcengine.co.uk
www.pcenginefx.com
www.turbomemoirs.com

» NEC Avenue's *Space Fantasy Zone* looked promising but sadly never saw release. Thankfully a working ROM exists.

while Hudson created many great games for the system initially, it still wasn't enough. Many of the big name brands from other publishers simply couldn't be published," continues Greiner. In a similar situation to that witnessed in Japan, Nintendo stipulated that if a third-party game was produced for the NES, it couldn't be released on a rival console. "That became a challenge that was not easily overcome," Greiner reflects, mournfully. Nintendo's bullying tactics were later found to violate US antitrust laws, but by then it was too late.

To make matters worse, NEC vastly overproduced its hardware. "They listened closely to retailers, who were very aggressive in their belief that 16-bit gaming was going to be a big success," explains Greiner. "NEC therefore over-ordered units and this proved fatal in the long run as they committed tremendous financial resources to create the hardware, which ultimately handcuffed them in marketing spend. Sega were able to successfully steal market share away with a 'bad-ass' image and an unfettered marketing bankroll."

The seemingly unbridled success experienced in Japan had sadly eluded NEC in America. "Arguably, the TurboGrafx-16 had better games, but a number of missteps took place when it came to hardware styling, box art, pack-in and release schedule," comments

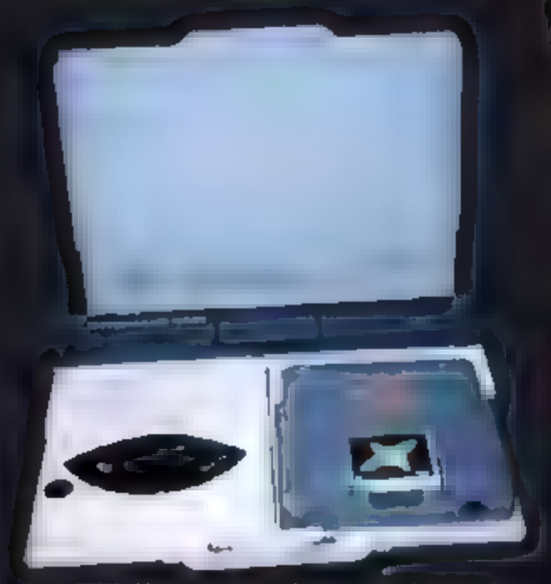
» Predating the Xbox *Steel Battalion* controller by over a decade, the monstrous SuperGrafx 'Power Console' featured full steering yoke, gear stick, throttle and numeric keypad. The SuperGrafx slotted in the back of this fearsome beast. It never got past the prototype stage.

Greiner. "Marketing and understanding the US gamer mentality was always a challenge for NEC."

Around this time there were faint rumblings of a European release for the PC Engine. Early in 1990 it was revealed that a UK company called Mention was intending to sell specially modified machines that would circumvent the various problems UK importers were experiencing. Known as the PC Engine Plus, this slightly altered system did not have the official blessing of NEC and unsurprisingly never took off. Despite several magazines reporting that NEC itself was 'literally months away' from officially launching the console in the UK for 'under £100', it never happened. "Europe was neglected, as this was NEC's first foray into the console market," comments Greiner. "However, there was considerable grey market penetration as Europeans also wanted to participate in the new gaming revolution."

THE DYNAMIC DUO

Back in Japan, the amazing success of the freshly released Super Famicom provoked NEC to consolidate the existing PC Engine hardware in the form of the Duo system. As you might expect from the snappy moniker, this was a PC Engine and CD-ROM drive combined. The need for easily misplaced System Cards was also negated as the Duo had the necessary RAM built in. Launched in 1991, the machine arguably represented the zenith of the PC Engine brand. A US release followed via the newly founded Hudson/NEC venture Turbo Technologies Incorporated (TTI for short), but the rebranded TurboDuo suffered the same ignominious fate as the TurboGrafx-16 before it: despite having some excellent software, it failed to gain a significant market share and faded quickly. Incredibly, it was confirmed by a former TTI employee on fan site



» The CD-ROM2 add-on came with its own briefcase to house it and the console – here a CoreGrafx II version.

» The legendary 'HuCard' was similar to Sega's 'MyCard' format for the Mark III console.

The TurboExpress attempted to do battle with the Nintendo Game Boy. The screen was excellent and it could play HuCard software, but poor battery life and a high price point rendered it uncompetitive.

www.pcenginefx.com that the company was offered exclusive home console rights to Midway's arcade hit *Mortal Kombat*, but the head office in Japan decreed that fighting games were oversubscribed in the US and neglected the offer.

The success of the Japanese Duo allowed NEC to further strengthen its position, applying intense pressure on Nintendo with a series of excellent titles while keeping poor old Sega firmly in third place. Classic games like *Dracula X*, *Gate Of Thunder*, *Star Parodia* and *The Legend Of Xanadu* proved that even in the relative infancy of the CD-ROM age, the extra space afforded by the format could be put to sterling use. Fortunately, the humble HuCard was not forgotten and a noteworthy conversion of Capcom's *Street Fighter II: Champion Edition* pushed the maximum capacity of the credit card-sized format up to a muscular 20 megabits.

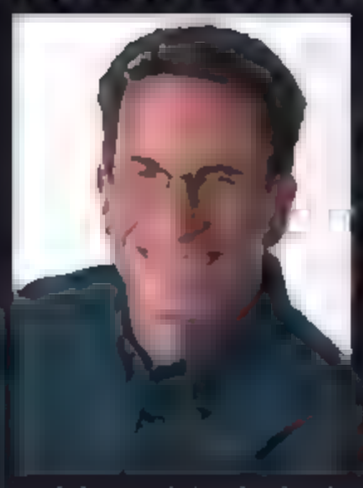
1994 saw the introduction of the Japanese-only 'Arcade Card', which increased the PC Engine's power to previously unimaginable levels. Slick coin-op conversions of *Fatal Fury Special*, *World Heroes 2* and *Art Of Fighting* soon appeared, and while these incredibly faithful ports won the console a whole new group of admirers, they came too late to make a truly telling impact. The 16-bit party, which the 8-bit PC Engine had skilfully managed to gatecrash, was beginning to wind down, and a new wave of powerful 32-bit behemoths loomed ominously on the horizon. Sales started to dwindle, forcing NEC and Hudson to develop a successor – the ill-fated 32-bit PC-FX. Built around the rather misguided belief that FMV-style games represented the future of the console industry, it unsurprisingly flopped at retail.

After nearly a decade of unwavering commitment to one another, NEC and Hudson finally parted company in the middle of the Nineties. The former went on to supply the graphical muscle behind Sega's Dreamcast and the latter continued to produce games for a wide range of consoles.

The PC Engine Shuttle ranks as one of the more unusual – some might say pointless – hardware modifications made available.

SPECIAL THANKS TO John Greiner and John Lee of Hudson Entertainment for taking part in this feature and Aaron Nanto of **www.pcenginefx.com** for providing exclusive hardware photos.

INTERVIEW WITH KEN WIRT



To get a better idea of the problems faced by NEC when it came to launching the TurboGrafx-16 in the US, we spoke exclusively to one of the key people behind the operation. Ken Wirt served as vice president and general manager of the TurboGrafx-16 Group at NEC Home Electronics from 1989 to 1991 and was responsible for many of the decisions made in regards to releasing the system in America.

When were you made aware that NEC intended to release the PC Engine in the US?

Almost right after I started at NEC as vice president of strategic planning. NEC released the PC Engine in Japan and it did quite well there. Then in the fall that year there was a request to bring the machine to the United States. So from that time it took us about a year and a half in order to be able to do that.

What factors influenced the name change to 'TurboGrafx-16' and why was the tiny PC Engine redesigned as a larger machine for the US?

Well, I think you have to go back to the time period – this was the early Nineties. Prior to the launch we did some market research with customers in the US and we found that the name PC Engine caused quite a bit of confusion. I think in Japan the name was okay because it's kind of an American phrase and that had some cachet. In the US, PC Engine was literally interpreted by customers as Personal Computer Engine. In regards to the restyled shape of the machine, it was going to be sold at a relatively high price and the customers we asked questioned why something so expensive should be in such a small package. They believed that if it's small it should cost less, not more. Of course today in the 21st Century we understand that smaller things sometimes cost more and you pay a premium for that advantage. The name change came about because we tested a number of different options and the one that did the best was the one that described the main benefit of the product, which was the graphics. Hence the name: TurboGrafx-16. The 16 related to the 16-bit graphic chips inside the machine.

How did you market the machine?

In terms of marketing of the product we knew it was a little more expensive because of the technology – quite a bit more expensive than what people had been used to paying for game machines, in fact. We also knew that we had peripherals coming out in the future such as the portable version – The TurboExpress (PC Engine GT in Japan) – and the CD-ROM drive that would be really quite expensive. So what we attempted to do was to position it as a high-end gaming machine for the kind of customers that had maybe grown up with the NES and were graduating to a more advanced system. Because these kids were older they would feel like they could spend more money on it. It wasn't like today, though, where there's a real adult market for gaming. We viewed this as kind of the older teenager crowd, so Nintendo was for people below the age of 16 and we're trying to go for 16 to 22, sort of when you graduate college, as the target market for the TurboGrafx-16.

How did NEC view the rapidly emerging Sega?

We certainly had our eye on Sega. In Japan the PCE had a big advantage over the Sega Genesis because it was out about a year before. In the US I believe the TurboGrafx-16 and Genesis launched within about ten days of each so there was no year-long advantage. In the US we knew that Sega would have strong software because they were developing games themselves. They also had experience in the US market with their Master System and they had licensed games too, so we knew they would be a force to contend with. We were actually more concerned about Sega than we were about Nintendo. Sega was very focused on licensing and they had *Joe Montana Football* and that was a great game on the Genesis. The games that were on the TurboGrafx-16 typically did not have licences. We tried to get some but needed to go back to Japan for approval, and in those days licensing did not play a big role in the success of the product in Japan. We had a tennis game that was pretty good but we wanted to get a tennis star to put their name on the game, so we worked out a deal with Pete Sampras. This is before he won any major tournaments, but we could tell he was an 'up and comer' as he'd just won the national championship for juniors. We drafted out a deal for him to be the star in our tennis game for $25,000. Ironically we couldn't get approval from Japan, not because of the amount of money involved but because they didn't believe in licensing. So we had *TV Sports Tennis* instead of *Pete Sampras Tennis*.

What are your memories of the US launch?

We launched it with some commercials that turned out to be quite controversial. The first set of TV ads tried to capture the excitement and speed that TurboGrafx-16 delivered. One of them showed a teenager playing TurboGrafx-16 alongside a goldfish bowl and when the teen began playing, the fish started swimming faster and faster. Bubbles started to appear, like the bowl was heating up, and the fish eventually jumped out because it was so hot. We had a similar one with cats – they also got very animated by the TurboGrafx-16 and were bouncing off the walls. This generated a fair amount of controversy among animal activists who thought that we were harming animals – in fact it was all done with computer graphics, which was much less common back then than it is now. Today people would probably guess it was CGI, but back then they wrongly assumed we were actually boiling the water with the fish in it, which I can assure you we did not do! Anyway, there were enough complaints directed to Toys 'R' Us management that they made a strong request that we pull those commercials, which we eventually did.

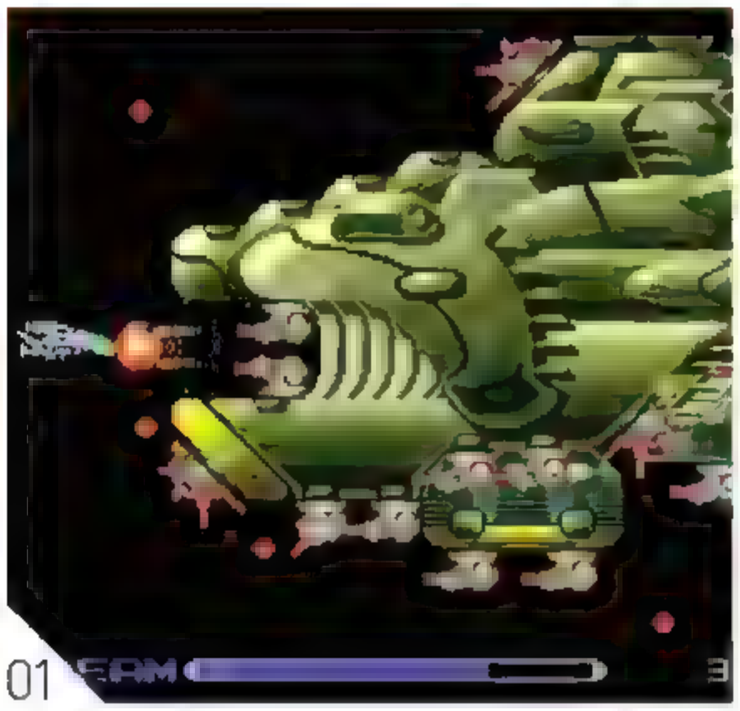
Another interesting anecdote involves a game from Japan called *PC Kid*, which featured a character who would go around and hit things with his head. In the US, a slang term for hitting something is to 'bonk' it, so we renamed the game *Bonk's Adventure*. Of course in England to 'bonk' means something entirely different, so our advertising campaign for this title got a lot of attention in Europe. We even had a commercial campaign in the US with the slogan 'Bonk for President' and that was printed on T-shirts and other marketing materials. I think if eBay had existed at that time you would have seen a lot of sales in the UK for those shirts!

The TurboGrafx-16 struggled against Sega and Nintendo. What steps were taken to rectify this situation when the TurboDuo was launched?

After a period of time we realised that there was a major cultural difference between the US and Japan that impacted the financial nature of the business. In Japan children get money for gifts, typically at New Year's time. It's their money and they can spend it however they want to. So if you have a very expensive games system, that's okay – if the kids want it and they have enough money, they'll buy it. In the US, of course, it's a very different dynamic. Kids still get presents around Christmas time but the parents buy the presents. Parents are very hesitant to spend a big amount on videogame systems, so we had a much tougher time selling the high-priced technology to parents in the US than selling the same thing to children in Japan. As a result we had to lower the price of the product and that put a lot of margin pressure on it. Because of the way the business was structured – with Hudson manufacturing the HuCards, sending them to NEC who then shipped them onto the US – there were mark-ups at each stage. It made the product too expensive. So to simplify the business model and reduce the cost to the consumers in the US, TTI was created. It basically let Hudson – the majority owner of TTI – manufacture the cards and sell them in the US at a lower price, which increased the volume and made the business healthier.

PC ENGINE

PERFECT TEN GAMES



01

R-TYPE

- **RELEASED:** 1988
- **PUBLISHED BY:** HUDSON
- **CREATED BY:** IREM
- **BY THE SAME DEVELOPER:** LEGEND OF HEROTONMA

01 Irem's legendary horizontal shooter is widely regarded as one of the PC Engine's most accomplished conversions and is credited with being something of a 'killer app' in the early years of the machine. Astoundingly accurate in terms of graphics, sound and gameplay, the only drawback is that it had to be split in two parts as it wouldn't all fit on one HuCard - so the PC Engine *R-Type II* isn't actually a sequel as you might imagine but the final levels of the game. A CD-ROM release set things straight and put everything on one disc, but collectors will want to seek out the dual HuCard editions for their attractive packaging.

SPLATTERHOUSE

- **RELEASED:** 1990
- **PUBLISHED BY:** NAMCO
- **CREATED BY:** NAMCO
- **BY THE SAME DEVELOPER:** GALAGA '88

02 Although it's inferior to the superb FM Towns Marty conversion, this commendable port remains a fantastic replica of the gloriously gory coin-op. It's so close to the original that you really have to run them in tandem to spot the differences. Supremely playable to boot, the Japanese version continues to command respectable but not extortionate prices on the open market. The American TurboGrafx-16 edition which was sadly censored upon release, is less desirable. Unfortunately it's this version that has been released in the US and Europe on Nintendo's Wii-based Virtual Console service. Boo.

02

GEKISHA BOY/ PHOTO BOY

- **RELEASED:** 1992
- **PUBLISHED BY:** IREM
- **CREATED BY:** IREM
- **BY THE SAME DEVELOPER:** MAJOR BLIGHT

03 This is easily one of the most novel and innovative PC Engine titles. Photo Boy is a budding paparazzo tasked with taking compelling shots throughout several different environments. Using the on-screen crosshair, you must take snaps of various objects and events while avoiding obstacles along the way. Graphically this is one of the most attractive titles available, packed with colour, detail and stacks of personality. Sadly, like many must-have PC Engine games, it's worth a pretty penny these days. An updated version exists for the PS2 and was released in the West as *Polaroid Pete*.

DRACULA-X: RONDO OF BLOOD (CD)

- **RELEASED:** 1993
- **PUBLISHED BY:** KONAMI
- **CREATED BY:** KONAMI
- **BY THE SAME DEVELOPER:** DEVIL FANG SERIES

04 Grill any hardcore *Castlevania* fan on their favourite instalment and they'll most likely say *Symphony Of The Night*. Press them a little harder and they may also mention *Rondo Of Blood*. Boasting stunning graphics, impressive anime cut-scenes and an excellent musical score, it's a game no self-respecting PC Engine owner should be without. Unfortunately, its lofty reputation keeps second hand prices exceptionally high (around £100). An updated PSP version was released in 2007.

STREET FIGHTER II': CHAMPION EDITION

- **RELEASED:** 1993
- **PUBLISHED BY:** NEC
- **CREATED BY:** NEC/CAPCOM
- **BY THE SAME DEVELOPER:** FIGHTING STREET (CD)

05 Most gamers know the superlative SNES instalment of this classic brawler. The fact that the PC Engine conversion is as good – if not better – is testament to the power of NEC's machine. Visually, it's hard to distinguish it from the SNES version and the sampled sound is better. It cries out for a six-button pad and multi-tap, but sadly the PC Engine only has one joystick port. It's hard to believe that an 8-bit console is capable of such an accurate conversion. Second-hand copies aren't too steep either.

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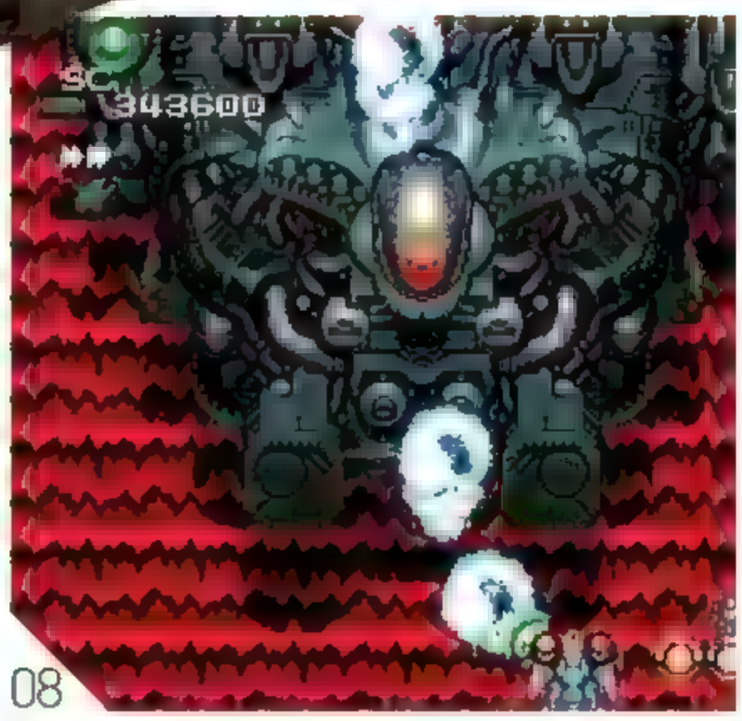


08

PC KID/BONK'S ADVENTURE

- **RELEASED:** 1989 (JAPAN)
- **PUBLISHED BY:** HUDSON
- **CREATED BY:** RED ATLUS
- **BY THE SAME DEVELOPER:** GATE OF THUNDER

06 Sega had Sonic. Nintendo had Mario. NEC had PC Kid, or Bonk as he was known In the US. A cave boy with a penchant for head-butting things, PC Kid became a firm favourite with gamers worldwide, though not quite as famous as Sonic or Mario. Two incredibly successful sequels followed as well as a futuristic shooter spin-off called *PC Denjin* (*Air Zonk* in the US). Interestingly, the failure of the TurboGrafx in the US meant that Hudson continued to support Nintendo's hardware, so PC Kid also appeared on the rival NES, SNES and Game Boy. The turncoat

YS BOOK I & II (CD)

- **RELEASED:** 1989 (JAPAN)
- **PUBLISHED BY:** HUDSON
- **CREATED BY:** NIHON (ALM)
- **BY THE SAME DEVELOPER:** DRAGON SLAYER

07 The large amount of text to translate and general consumer apathy towards the TurboDuo meant that very few of the brilliant Japanese RPGs created for the machine ever made it to Western shores. Thankfully, those that did were of a very high quality and *Ys I & II* arguably ranks as the most impressive of the bunch. While it's not the prettiest game you're ever likely to play, the atmosphere, storyline and soundtrack are second to none. Amazingly the Western script and voice acting are both first-class, which rather goes against the grain of the time. This CD-ROM release remains massively engaging and highly recommended

SEIREI SENSHI SPRIGGAN (CD)

- **RELEASED:** 1991
- **PUBLISHED BY:** NAXAT (SOFT)
- **CREATED BY:** COMPILE
- **BY THE SAME DEVELOPER:** ALESTE

08 Software studio Compile sadly no longer exists, but has left a striking legacy – including this awesome Super CD blaster. A close relative to the equally brilliant Mega Drive *MUSHA Aleste* and Mega CD *Dennin Aleste* (*Robo Aleste* in the UK and US), this mecha-based vertically scrolling shoot-'em-up is as slick as they come. Blisteringly fast and packed to bursting point with stupefying detail, *Spriggan* qualifies as an essential – albeit expensive – purchase. It's worth noting that the sequel, *Spriggan Mk2*, wasn't programmed by Compile and isn't a patch on the original, despite some nice visuals

09

GOMOLA SPEED

- **RELEASED:** 1990
- **PUBLISHED BY:** UPL
- **CREATED BY:** UPL
- **BY THE SAME DEVELOPER:** ATOMIC ROBOKID

09 This quirky little game is hard to adequately describe, as there really hasn't been a game quite like it before or since. You control a caterpillar-like creature that has to encircle food in order to exit each level. Enemies are also dispatched by surrounding them, and can be stunned temporarily with bombs. It's one of the truly essential pieces of PC Engine software and can thankfully be picked up for less than a fiver these days. It's rumoured that the team behind the game was head-hunted by Nintendo soon after it was published, which is hardly surprising. A truly superb title that mixed strategy and puzzle elements to great effect

BOMBERMAN '94

- **RELEASED:** 199
- **PUBLISHED BY:** HUDSON
- **CREATED BY:** HUDSON
- **BY THE SAME DEVELOPER:** BOMBERMAN

10 It simply wouldn't be sporting to discuss the best games of the PC Engine without mentioning what is arguably Hudson's most famous creation. Bomberman has appeared in several games on NEC's 8-bit machine, and while all are excellent – with the possible exception of *Panic Bomber*, which was a fairly lacklustre puzzler – this edition is the most accomplished of the bunch. The traditional explosive-related malarkey is all present and correct, but here we also see the introduction of innovations such as animal steeds and new characters for the near-essential multiplayer mode. It was ported to Sega's Mega Drive under the highly original name *Mega Bomberman* in 1994

10

Retro Gamer Celebrates The MEGA DRIVE

In a change from our usual format, we decided to take an extra special look at one of history's most special games machines. Stuart Hunt celebrates the most popular Sega console ever made and talks to the people who made it burn so brightly for so long.

Despite the Master System's inability to break Nintendo's kung-fu grip over Japan and the US, and the collateral damage caused by the commercial collapse of the Mega-CD, the fact remains that each and every one of Sega's machines made important contributions to the videogames industry, helping to shape it into the billion-dollar beast it is today.

Sega's Master System is memorable for marking the company's first attempt at taking 'home gaming' global, and despite the console's inability to break Nintendo's vice-like grip over the US and Japan it allowed Sega to penetrate territories where the Big N had struggled – most notably in Europe and South America. The Japanese version (the SG-1000 Mark III) is also noteworthy for being one of the few consoles to offer backwards compatibility out of the box, with the third version of the machine compatible with both Mark I and Mark II software. Plus, the system introduced in a loose sense, a 'budget' range of console software with the credit-card sized MyCards in 1985, and Opa-Opa and Alex Kidd pioneered the idea of a Sega mascot before Sonic the Hedgehog was even a spiky glimmer in Yu, Naka's eye. More importantly than all that,

RiVE

though, the Master System turned Sega's focus away from the arcade and home-computer markets and set it firmly on the road to console development

When Sega launched the Mega Drive in Japan on 29 October 1988, the company faced stiff competition from a firmly established Nintendo, still riding high from the popularity of the Famicom, and the new, sleek-looking 8-bit powerhouse called the PC Engine – a joint hardware venture by Japanese electronics companies Hudson Soft and Nippon Electronics Company (NEC) that was allowing some of the most popular arcade games, including several Sega licences, to be played in the home

At the time, the main ambition of Hayao Nakayama, then head of Sega, was to create an arcade system for the home, similar to how NEC had positioned the PC Engine. Despite the obvious direct competition that would present, it was a decision that made sense for two reasons. First, Sega's amusement division was producing some of the most popular arcade games of the day, and, second, the internal specs of the Mega Drive were based on a revision of Sega's System 16 arcade board. With the machine's development overseen by Sega technician Hideki Sato, the Mega Drive's arcade

In Sega's determination to find a mascot for the Mega Drive, this duo was mooted. ToeJam and Earl were a dysfunctional pair of aliens who appeared in one of the most original and colourful games on the machine

The Mega Drive excelled with Disney-licensed games, with *Aladdin* being one of the console's most popular

The gritty cyberpunk adventure *Flashback* struck a chord with plenty of Mega Drive owners on its release – not that Conrad would ever remember

Q&A

Trip Hawkins

Retro Gamer: Many people feel that EA was instrumental in the Mega Drive's Western success. Is this something you'd agree with?
Trip Hawkins: There's no question about it, considering that EA had about 50 per cent of the software business for the Mega Drive and expanded the market with EA Sports. *Populous* and *Road Rash*

RG: What was your relationship with Sega like?
TH: To this day, there is a high degree of mutual respect and class in my relationships with David Rosen, the founder of Sega, Nakayama, who acquired and modernised Sega in the digital era, and Tom Kalinske, who was president of Sega of America during the heyday. That said, we did go toe-to-toe when we negotiated deals and it was no holds barred. In hindsight, I imagine for all of us that we consider each other among the more entertaining characters we have had the opportunity to do business with in our lives

RG: What were those little yellow tabs for on EA carts?
TH: It was just for a bit of colour and visual interest and it probably kept the cartridge from cracking open. It's great that you remember something that silly

RG: Many EA games were far better on the Mega Drive than they were on the SNES. Why was this?
TH: It's pretty simple really. If you only wanted to do a paintbox program or a beautiful landscape for *Mario* that scrolled slowly, the SNES was great. But for conventional games with conventional animation needs, the Mega Drive was the clear winner

RG: Which EA Mega Drive game do you feel best took advantage of the machine and why?
TH: It's hard to argue with *Madden Football*, *Populous* or *Road Rash*. I also loved *PGA Tour Golf*

RG: What's the best non-Electronic Arts Mega Drive game you've ever played and why?
TH: My personal favourite would probably be *Rampart*, and I also really liked *ToeJam & Earl*. The most successful non-EA game would of course be *Sonic*, but that's not my favourite genre

RG: Why do you think the machine remains so popular with gamers?
TH: Plug and play, two players head-to-head, graphics that are good enough, your favourite sports. What's not to like?

Retro Gamer Celebrates The MEGA DRIVE

The EA Connection

ROAD RASH

Sometimes the clumping together of two game genres can have less than desirable results, you often end up with a game of two halves with neither feeling strong enough. Not so with *Road Rash*, a game that mixed the brutal dust-ups of *Streets Of Rage* with the exhilarating driving of *Super Hang-On* with astonishing aplomb. Spanning a series of three games for the Mega Drive, *Road Rash* proved a popular racing series on Sega's machine and a hugely successful franchise for EA.

JOHN MADDEN FOOTBALL

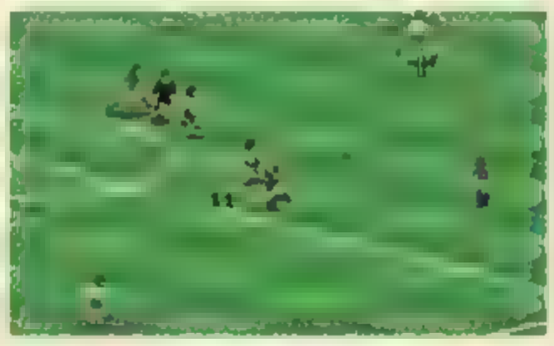
To say *John Madden Football* was as important to the Mega Drive's Western dominance as *Sonic The Hedgehog* is no understatement. With American football the most popular thing in the US since the hamburger, this game's success was secure. Rushed through development at the behest of Sega, who was desperate to have a Mega Drive football game on its machine, EA cemented Sega's fortunes by helping the Mega Drive find its way into millions of US homes.

DESERT STRIKE

Desert Strike caused a bit of a stir following its release after some gloopy members of the press criticised EA's game for attempting to capitalise on atrocities of the Gulf War. We, of course, side with EA and believe that war games have and always will have their role to play in videogames, contemporary or otherwise. *Desert Strike* was an isometric take on the classic POW-rescue classic *Choplifter* and like its popular Apple II muse mixed elements of action and strategy brilliantly.

FIFA INTERNATIONAL SOCCER

The most eagerly anticipated 16-bit football game of all time, *FIFA Soccer* had a similar effect on us European Mega Drive owners as *John Madden Football* had on our American cousins. While its isometric perspective meant *FIFA* wasn't the most intuitive or slickest of football titles of the day, the game did boast some wonderfully detailed-looking player and stadium graphics, immersive sounds, and wrapped everything up in a nice little official package.



One of the slickest-looking games to ever appear on the Mega Drive, *Earthworm Jim* was bestowed the honour of Game of the Year by a chuffed as punch Sega

David Perry

Retro Gamer: From a game programmer's point of view, what would you say were the machine's strengths and weaknesses?

David Perry: Scrolling with sprites was what these machines were designed to do. I guess our angle was the way we compressed up animation and could still get it to display fast. We also had come up with a way to use really good pencil animators and get those pencil drawings coloured and compressed into our funky format, and then gave a lot of control to the animators so they could tweak to their heart's content.

RG: Many feel that Shiny was instrumental in the Mega Drive's Western success. Do you agree?

DP: I was in the right place at the right time. I flew from England to the US to make *Global Gladiators*, then surprisingly it won a Game of the Year award from Sega just as I was planning to go back to the UK. So I stayed and made *Cool Spot*. Sega ended up liking that, so they gave us *Aladdin*. *Aladdin* ended up winning a ton of awards and was even boxed with the hardware. So how could I leave? That's when I started the *Earthworm Jim* team in Laguna Beach and those guys rocked. Once Sega saw that, we got Game of the Year again. So guess my point is that it just fit together if I'd left and gone back to the UK, who knows how this would have played out.

RG: Were there any developers writing software for the Mega Drive that you respected and admired?

DP: I finally got to meet Yuji Naka, he was my hero at the time. There were plenty of other great teams around, but Treasure scared me. They also were somehow getting more out of the hardware than just about anyone else. *Gunstar Heroes* was one of my favourites at the time and I always lived in fear of their next game. So I think again that pushed us to keep trying harder.

RG: Was there any reason why you 'appeared' to favour developing for the Mega Drive over the SNES?

DP: I had a friend called Nick Jones who was a fantastic SNES programmer, so felt he had that machine covered. Back in those days we, as a group, all worked on different hardware and did conversions for each other. I was Spectrum, then Amiga, then Atari ST, then Genesis. He was Commodore 64 and then SNES. Another friend was PC. I guess if he had grabbed the Genesis I'd have ended up on the SNES. It's funny how things work out.

RG: Why do you think Sega's Mega Drive has remained so popular?

DP: It's where a lot of us grew up, and really bit into some fantastic games. There was such a wide library of cool games. Just thinking about it makes me want to go and fire up my old Nomad.

RG: What is your best memory of the Mega Drive?

DP: Walking into the room for the *Aladdin* launch. Over 1,000 of the world's press at CES coming to see our game. The platform had really hit the 'big time'. 15 years later, I've still never seen an equivalent press launch, anything remotely as spectacular just for a videogame. So those *were* the days!

beginnings meant it would produce wonderfully accurate arcade ports and also prove an easy platform for third-party developers to work with. Also, it seemed Sega was looking to the Mega Drive as a cost-effective path to generate sequels to its arcade hits and to create franchises. When Sega released the Mega Drive in Japan it was launched with three such – albeit not great – games, all of which supported this thinking: *Space Harrier II* and *Super Thunder Blade*, with *The Revenge Of Shinobi* following a few months later.

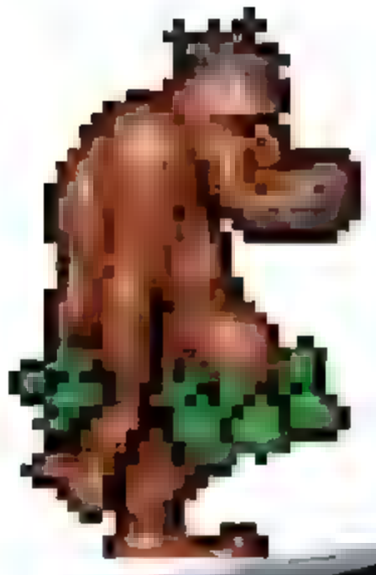
Despite its promising-sounding software lineup and technical credentials, sales of the Mega Drive proved slow in Japan, and the machine's inability to break the country proved the source of much frustration for Nakayama and his team. It's possible that the Mega Drive's battle to strike a chord with Japanese gamers could be largely down to the very same reason it would later prove such a hit in North America.

NEC released the PC Engine in Japan on 30 October 1987, almost a year earlier, to the day, than Sega would roll out the Mega Drive. This 12-month head start on the market, coupled with the fact that NEC was reportedly pumping almost $4 billion into R&D and that Japanese gamers were said to be thirsting for a 16-bit machine, gave NEC the perfect opportunity to capitalise on demand. By the time Sega was finally ready to launch the Mega Drive across Japan, the PC Engine had overtaken the Famicom to become the bestselling console in the country. NEC had captured almost a third of the market. Perhaps it was this realisation that saw Sega hurry the Mega Drive's US release a year later, the same time NEC was planning to make its assault in America armed with a re-skinned version of the PC Engine.

And so began a ferocious battle between marketing men and women, as both Sega and NEC fought to be eager Nintendo's hold over the North American videogames market. It was a battle that Sega would win thanks to a pair of aces up its sleeve. First, the Mega Drive – rebranded the Genesis in the US – was supported by a selection of launch titles – *Altered Beast* and *The Revenge Of Shinobi* – that found an instant appeal among young Western gamers, which is unsurprising; you need only look at the curious Western appearance of Joe Musashi in *Shinobi* or breathe in the Americana dripping from the exhaust of *OutRun*'s red Ferrari to see that Sega had always demonstrated a great proficiency in melding Eastern and Western cultural influences into its early arcade games. The other advantage Sega had was that it also had one hell of a marketing arm to drive the Mega Drive in the US – a team that was astonishingly apt at capturing the tastes and moods of the market.

Sega of America began as a distribution company, with hardware, software, and key decisions, such as the unpopular need for regional lockout in the Genesis, being made in Tokyo and filtered across to its Redwood City offices in California. Thanks to Nintendo's heretical

"A wave of EA titles began appearing at a rapid rate"



approach to business, and the stringent licensing agreements it imposed on software developers, the Japanese giant quickly built up a bit of bullish reputation in the West. This would prove beneficial to Sega. Under the guidance of Michael Katz, the then-president of Sega's US arm, the popularity of the Genesis gained momentum quickly as developers started seeing Sega's new machine as a viable and potentially profitable platform. Scot Bayliss, who joined Sega of America as a technical director in 1992, explains:

"At the time, Nintendo was notorious for having this insufferably arrogant attitude towards third-party publishers. To be fair, I question how much of that was by intent, but the perception of software makers here in North America and in Europe was that Nintendo was heavy handed, capricious and unfair in its treatment of the West. That single factor probably drove the creation of more good software on Sega's hardware than anything else. To third parties, we were the good partner and some of the most important titles in the West came to us first, exclusively or just better as a result. Later, Sony positioned themselves against both Sega and Nintendo as the first party who would step up to helping third-party publishers. They essentially replicated Sega's strategy of being the friendly face to developers – only they did it better. And the results spoke for themselves."

It's a well-known fact that Electronic Arts, through its popular range of sports titles, would prove instrumental in helping the Mega Drive secure an early success in the US. After it was discovered that EA had reverse engineered the Genesis hardware, a cocksure EA threatened to release unlicensed software on the platform unless a favourable licensing agreement could be met. Sega, possibly fearing the bad publicity this could throw up, balked at the threat and Electronic Arts got its wish. The first wave of EA titles began appearing on the machine at a rapid rate, which was of course great news for a new console with a relatively small amount of software on its shelf. The sweet irony, of course, is that the speed at which EA was able to turn out its titles for the Mega Drive could only be attributed to Trip Hawkins reverse-engineering the Genesis in the first place. But, as Bayliss explains, EA wasn't the only company who worked out how to circumvent Sega's security measures and tried to use it to their benefit.

"There were quite a few third parties that figured out how to bypass the Mega Drive's security checks," he says. "Probably most notorious among these rogue publishers was Accolade. And, of course, Sega sued. And there was much wailing and gnashing of teeth. But the reality is that opening up the platform like that, while it certainly cut into Sega's direct licensing revenue, it may well have helped them hit critical mass far more quickly."

So what was the attraction of the Genesis from a development standpoint? And what was it that Trip Hawkins saw in the Mega Drive that persuaded him to bet so heavily on the hardware? We contacted the Electronic Arts founder to find out.

"The 8-bit systems weren't powerful enough and the 16-bit computers cost too much," says Hawkins. "The Mega Drive was the first affordable consumer product with an MC68000 processor. I was involved in one of the first commercial uses of that processor at Apple back in 1979 and after I founded EA we began working

The Sega Connection

STREETS OF RAGE

After Nintendo had secured the licence for *Final Fight* for the Super Nintendo, Sega set to work on its own brawler. And while *Final Fight* clearly had the graphical edge over its scruffy rival, in terms of gameplay depth of moves and enjoyment, *Streets Of Rage* knocked Capcom's game out cold. Sega quickly followed up its efforts with *Streets Of Rage II*, a game that ramped up the moves, the graphics, the bosses and the soundtrack of the original, and a third game that rounded off the trilogy brilliantly although we advise you to get the Japanese version as it has a better story, skimpier outfits, better colour palettes and a difficulty level that wasn't set by a masochist.

SONIC THE HEDGEHOG

In terms of gameplay we don't think any sane person could argue with us that Sonic's adventures were better than Mario's – however what those seminal *Sonic* games do they do flawlessly well. *Sonic The Hedgehog* ushered in a new dawn of platform game; an exhilarating dash-and-smash approach that wowed and dazzled like only the very best Sega games do. Following the game's success, Sonic Team quickly set to work on a sequel, and added a popular sidekick in Tails, a two-player mode and some nifty new moves to Sonic's action repertoire, producing what many consider the pinnacle of platformers on the Mega Drive.

SHINING FORCE

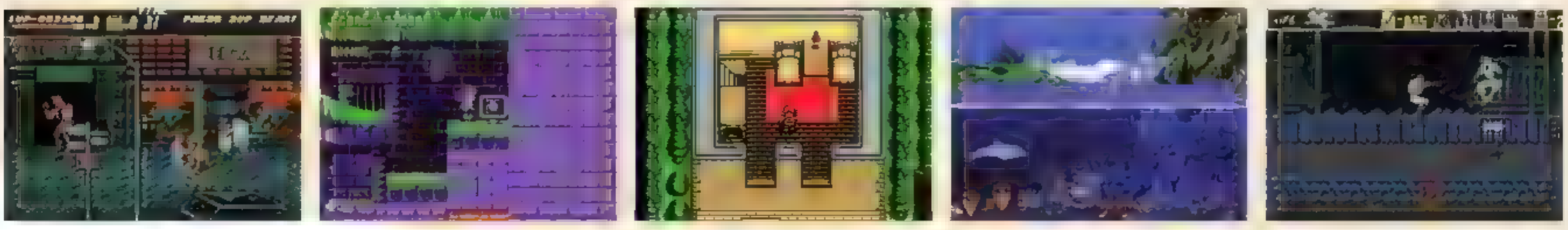
It was a close call between this and *Phantasy Star* but if we had to pick one definitive RPG series on the Mega Drive then the *Shining* series wins by a nose. As one of the earliest examples of the strategy RPG to come to Europe, *Shining Force* and its sequel introduced Mega Drive owners to a whole new way to enjoy the role-playing genre. Taking the tactical gameplay of chess and expanding it into a fantasy environment with the story and character growth of a *Dungeons & Dragons* game, it mixed several pre-existing elements to make something fresh and interesting. That the series survives 18 years on is testament to its enduring appeal.

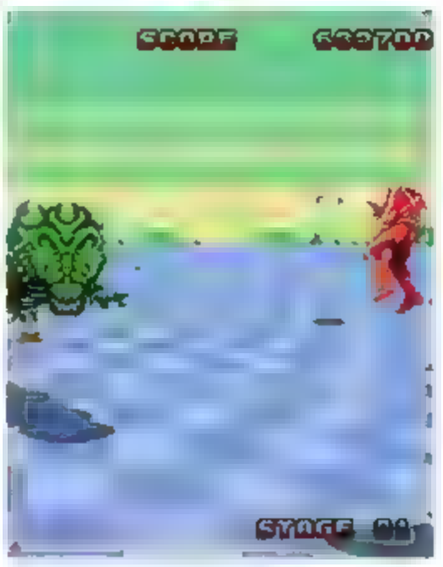
ECCO THE DOLPHIN

When poor old Ecco's pod is mysteriously sucked out of the ocean by a malevolent twister, it falls to the young bottlenose dolphin to uncover what has happened by solving puzzles and interrogating wise schools of fish. *Ecco The Dolphin* boasted some of the most impressive visuals ever seen on Sega's Mega Drive, but due to the fact that it wasn't your typical action-adventure game many would sadly pass *Ecco The Dolphin* off as a game for children simply because it featured a cute little dolphin on its box. But those who took the time to scratch at its glorious seabed would find one of the trickiest and most endearing games to find a release on the Mega Drive.

SHINOBI

Joe Musashi had quite a turbulent life on the Mega Drive. First, his wildly popular arcade game never got a Mega Drive release; his brilliant second adventure, *The Revenge Of Shinobi*, had to go though all sorts of revisions when it was released in the US because it had bosses who resembled Spider-Man, Batman, Godzilla, the Hulk and the Terminator, and finally for the Mega Drive conversion of *Shadow Dancer* poor Joe was forced to replace his own son. Geez! At least Sega made it up to Joe in *Shinobi III: Return Of The Ninja Master*, which included amazing bosses, fantastic horseback and surfing sections and a greater emphasis on moves and combat.





• The brains behind the Sega Mega Drive, Hideki Sato

“It was great for programming our EA Sports games”

with it in 1982. Later the Mac, Amiga and Atari ST used the MC68000, and so did coin-op arcade games. But all of that equipment was too costly for most consumers. Of course, the Mega Drive also had custom silicon to speed up the graphics and sound. It was a great sprite machine so it was good for programming our EA Sports games. We could use a little bit of 3D for the playing field and then have nicely scaling sprites for the players. It was also plug-and-play and had two joysticks. All of that made up for the limited RAM and lack of read-write storage.”

The Mega Drive offered consumers an affordable way to experience the type of games that were wowing Amiga and Atari ST owners at the time. And thanks to EA’s background in software development for home computers, games such as *The Immortal*, *Powermonger* and *Populous* began appearing on the Mega Drive, which would have undoubtedly ensured it wider appeal. It’s no coincidence that the Mega Drive was successful in North America and Europe, the two territories where the Amiga and Atari ST were also very popular. But not everyone was as convinced in the all-conquering potential of Sega’s 16-bit machine.

“After the Mega Drive debuted in Japan in 1988, I decided to have Electronic Arts bet heavily on it because it just made perfect sense to me,” remembers Hawkins. “But, to be fair, most of the industry and most of the world figured that when Nintendo finally deployed their 16-bit response they would again roll over and crush Sega in their sleep.”

In 1990, Tom Kalinske famously took over the presidential reins of Sega of America and built brilliantly on the promising foundations that Katz had laid down. But while the US climate couldn’t be rosier for Sega going into the Nineties, in the Land of the Rising Sun things couldn’t have been more different. A dormant leviathan was about to reawaken as Nintendo slovenly entered the 16-bit fray. Backed by two leading Japanese developers, Square and Konami, and with a machine that, it was said, would blow the competition out of the water, many felt the Mega Drive’s days were soon to be numbered. Expectantly, the Mega Drive was hit hard in Japan by the Super Famicom’s popularity, but thankfully for Sega, when the time came for Nintendo to release its machine in North America a year later, Sega had gained a considerable lead in the market, and by 1991 the success of the Mega Drive in America was sealed.

Starting out life with the name ‘Mr Needle Mouse’, a blue hedgehog, in keeping with Sega’s corporate colour, beheld the most dazzling and slickest platform games ever created, capturing the hearts and minds of an entire generation of gamers. Sonic, as we would come to know him, would become a global superstar and a vital pawn for Sega in the ensuing console war. Despite initial reservations by Sega’s American execs – apparently many of them didn’t even know what a hedgehog was – the impact that Sonic the Hedgehog would have on the fortunes of the Mega Drive was unprecedented. Not only did Sonic give a face to Sega in the same way that Mario had given one to Nintendo but the Blue Blur also stirred imaginations and creativity among developers, and caused many to sit up and take notice of what the Mega Drive was capable of. Shiny Entertainment founder David Perry recalls the first time he ever saw Sonic dart through

Readers’ Comments Favourite Mega Drive Moment

Zerocool
Avoiding breaking loose on Level 3 of *Strider* and changing into a werewolf for the first time in *Altered Beast*.

Mike Haggar
Booting up *Sonic* for the first time and hearing Seeee gaaa.

DPrinny
Playing Master System games on it. Or seeing / getting / showing off with peripherals, add-ons and things. It was like some strange kinda orgy.

Havantgottaclue
Buying one of Gamestation’s first ever about three years after launch, starting my retro gaming fetish.

Lorfarius
The awesome moment when playing *Altered Beast* when you first realise you can change into the werewolf.

psj3809
Beating my best mate on John Madden Football. It was the last play of the game. I threw the ball up and hoped for a bit of luck and somehow my player caught it to win the game on the last play.

Tepid Snake
The Mega Drive had a very [illegible] games, all of which I played to death, and I’ve been getting the collection bug ever since.

Rabiteman
The third ride that was Gunstar Heroes Seven Force boss.

djcarlos
The first time I summoned the police car in *Streets Of Rage*. [illegible]

timewarpgamer
Playing the Sega 32X on top of my model one Genesis in addition to the original Mega CD expansion, and enjoying *Space Harrier*, *Virtua Racing* and *NBA Jam* for the first time at home. The 32X may have sucked overall, but those games rocked my own little world back then. And they still do.

The Disney Connection

CASTLE OF ILLUSION

With Mario leading the charge for Nintendo, it was obvious that Sega was going to need a pretty big platform star to pull in the kids, and who bigger than Mickey Mouse? The first in a series of surprisingly brilliant Disney-licensed games to appear on the Mega Drive, *Castle Of Illusion* was a sugary platformer with jaw-dropping cartoon graphics and slick animation. It proved an early warning shot to the commercial pull and technical prowess of Sega's machine

QUACKSHOT

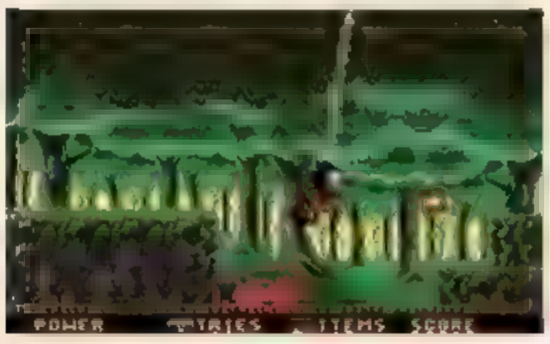
Another Disney classic, this time starring Donald. With an *Indy* theme, *Quackshot* wasn't your typical platformer While its gameplay still involved lots of running and jumping, progression through the game's stages rested on Donald finding the correct items and using them in the right instances. While it might not sound that impressive today, back then it marked a succinct change to the usual style of action/platformers and led to *Quackshot* getting some pretty high review scores.

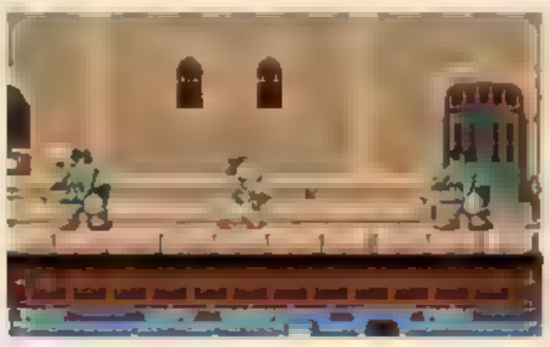
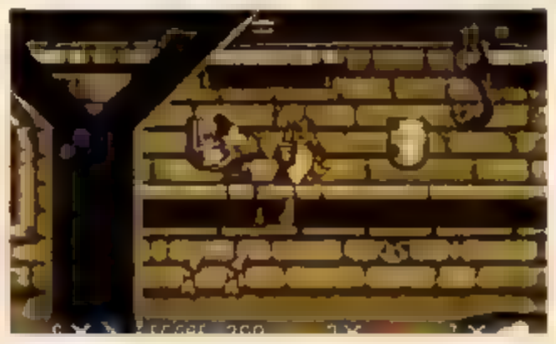
FANTASIA

Released to tie in with the operatic Disney feature of the same name, *Fantasia* took one scene from the movie and built a game around it. While it looks great its visual slickness belies cumbersome gameplay and irksome combat – issues that is are said to have arisen from the game being rushed. It's a shame because it could have made for a fabulous quartet of Mega Drive appearances for Mickey. 'Quartet?' you cry. Lest we forget *Mickey Mania*?

WORLD OF ILLUSION

The natural conclusion for the early wave of Disney licensed games found Mickey and Donald teaming up in a colourful platformer. As the name suggests, *World Of Illusion* is the sequel to *Castle Of Illusion*, and the gameplay is very similar. The main difference is that *World Of Illusion* is essentially three games in one. You can play out Mickey's adventure, Donald's, or a co-op mission. But it's not a lengthy affair like all these Disney games, their simplicity and short length let them down



the Day-Glo delights of the Green Hill Zone, a moment he would never forget

"When I saw *Sonic*... I really didn't know how the *heck* Yuji Naka managed to get so much out of the hardware," says Perry. "Who is this guy? It was as fantastic as it was a real kick in the pants. From that point on, we started to think a lot bigger."

The success of *Sonic The Hedgehog*, coupled with the popularity of EA's highly successful sports series and throwing millions of dollars at high-profile endorsements, was enough to see Sega become the 16-bit victor, and by 1992 the company had grown its market share from eight per cent to an astonishing 55 per cent It had finally toppled Nintendo, taken control of the market and achieved its lofty goal. It was a truly momentous time

"In retrospect it seemed a little surprising to the folks in the trenches," admits Bayliss. "One day I saw this email from Tom Kalinske announcing a celebration and I was like, 'Huh? We won? When did that happen?' We were so heads down, fighting the fight, we literally didn't notice."

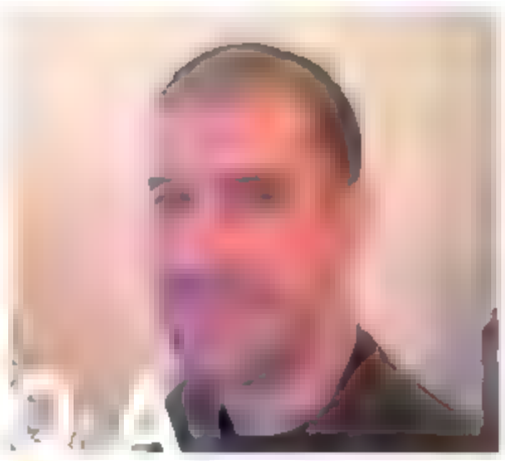
And how did Sega celebrate the auspicious occasion?

"There was this all-hands company meeting – they had to do it in the parking lot," remembers Bayliss. "We were still in the Shoreway building in Redwood City at the time and there just wasn't enough room indoors. There was a little speechifying and they handed out varsity jackets and watches with Sonic emblazoned on them. Very cool swag. Believe it or not, I still have both."

But Bayliss also reveals that the real impact of that moment actually happened afterwards

"There was this mood of near zealotry in the company," he says. "Nintendo had been the big dog for a while and we were the scrappy upstarts – well at least we thought of ourselves that way When we overtook Nintendo of America it kind of kicked us into high gear. For two years, it seemed like we would stop at nothing to put the boot into the Nintendo gang whenever we could. I even remember the original copy for those Mega-CD ads they ran in the 25th anniversary edition of *Rolling Stone*, which specifically took a shot at Nintendo. It was the company jihad."

Nintendo's entrance into the 16-bit market generated the most passionate and high-profile console war ever seen. From boardrooms to playgrounds, the SNES versus Mega Drive conflict, which actually proved mutually beneficial for both parties, became a global maelstrom. It was an exciting time to be playing videogames and just as exciting a period to be making them. The 16-bit era marked a period that saw many precedents set in the industry as the extra power that Sega's Mega Drive and Nintendo's SNES brought to the table spurred many developers to experiment and attempt to push envelopes even further.



Paul Davies

Retro Gamer: Can you recall the first time you ever saw a Mega Drive running, and what was your first impression of the machine?
Paul Davies: Me and a mate went halves on an import Japanese Mega Drive in 1989. We had no idea what it was capable of other than seeing a couple of screenshots in a *Mean Machines* guide to consoles. We bought it with *Altered Beast* and *Ghouls 'N Ghosts*. We played them both to death! *Ghouls 'N Ghosts* became an obsession The first game I ever played until 4am without realising what had happened!

RG: What is your all-time favourite Mega Drive game and why?
PD: *Ghouls 'N Ghosts* because it was so tough but full of great special effects and lots of detail to reward playing through it over and over and over

RG: What is your favourite Sega series and why?
PD: This has to be *Virtua Fighter* It has such authority now thanks to its flawless history and, despite being spectacular, is also quite graceful in a Zen sort of way I admire its precision and fluidity. On the Mega Drive? I really enjoyed the *Shining Force* franchise because you could see the game's heroes upgrade their armour and weapons

RG: Which game do you feel best took advantage of Sega's machine and why?
PD: *Gunstar Heroes*, without a doubt almost my favourite game of all time. It was the first, and probably only, game to outperform the Super Nintendo with rotating sprites and a ton of colourful characters on screen. One particular boss – the Seven Force – morphed into amazing forms that included a robot panther thing and a giant automatic pistol. This is one of the greatest 16-bit games ever made, in my opinion

RG: Why do you think the Mega Drive has remained as popular as it has with gamers?
PD: Almost every new game brought a new idea, especially those games from Treasure, such as *Dynamite Headdy* and so on. Sega produced some great role playing games, there were also some awesome shoot-'em-ups such as *Hellfire*, *Zero Wing* and *Bio Hazard Battle* (aka *Crying*). It represents an era when Sega was at its most bold and experimental – some of the Mega-CD games were very ambitious if not always pretty (*Sewer Shark*)

RG: What is your best memory of the Mega Drive?
PD: Taking turns at getting through the shoot 'em-ups with my mates back home. Treating each new game as a real challenge and playing them right to the end without using continues. We even played *Moonwalker* like that. The Mega Drive was my training ground

Retro Gamer Celebrates The MEGA DRIVE

Richard Leadbetter

Retro Gamer: Can you recall the first time you ever saw a Mega Drive running, and what was your impression of the machine?
Richard Leadbetter: Yes, the first time I saw the Mega Drive, I was being interviewed for a position on *C&VG* by Julian Rignall. That would've been June 1990. Up until that point, I'd been strictly a C64/Amiga man, and had been put off the consoles after I saw how poor my favourite coin-ops – *OutRun* and *After Burner* – were on the Master System. The first games I saw in EMAP's dingy games room were *Golden Axe* and *After Burner*. Both were still some way off arcade perfect, but both were a clear leap ahead of the conversions I was playing on the Amiga. I think it was when I saw *Super Shinobi Revenge Of Shinobi* in the West that I realised that we were looking at a truly phenomenal machine.

RG: What is your all-time favourite Mega Drive game and why?
RL: Treasure's *Gunstar Heroes* is probably my favourite. It oozes playability and is technically unbelievable, but more importantly, this game represents Treasure at its height, almost exploding with pure creativity. *Dynamite Headdy* is another solid-gold classic almost as good as *Gunstar Heroes*.

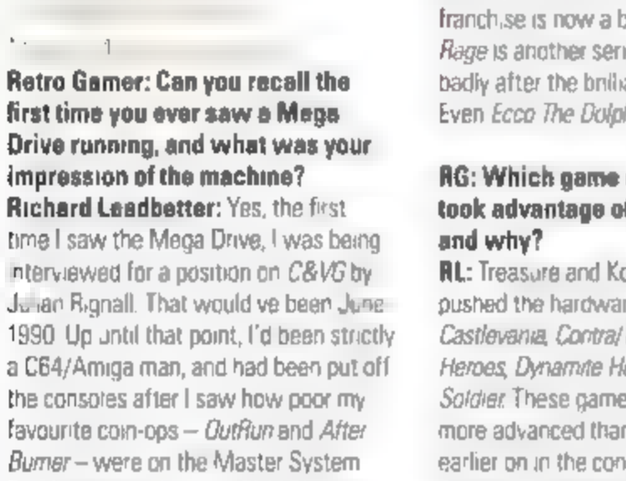
RG: What is your favourite Sega series and why?
RL: The problem with all the Sega series, certainly on Mega Drive, comes down to the fact that pretty much all of them declined, sometimes rapidly. *Sonic 3* wasn't a patch on its predecessor, or indeed, *Sonic CD*. In fact, even today, the franchise is now a bit of a joke. *Streets Of Rage* is another series that disappointed badly after the brilliant second game. Even *Ecco The Dolphin* had *Ecco Jr.*

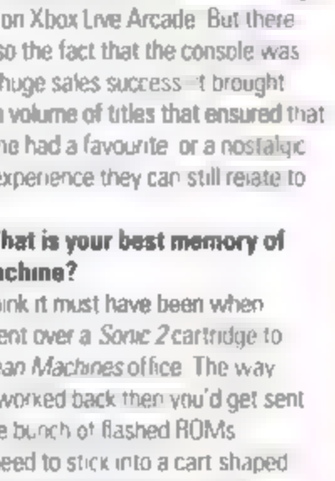
RG: Which game do you feel best took advantage of the machine and why?
RL: Treasure and Konami really pushed the hardware with games like *Castlevania, Contra: Probotector, Gunstar Heroes, Dynamite Headdy* and *Alien Soldier*. These games were massively more advanced than their equivalents earlier on in the console's life cycle. Outside of Japanese releases, the *Vectorman* titles were also quite, quite awesome, and while the gameplay wasn't exactly top-notch, the Dave Perry games like *Terminator, Cool Spot, Global Gladiators* and the likes were also great showcases for the Mega Drive. I think *Ranger X* deserves a special mention – the Mega Drive has quite a limited colour palette, but that game switched the palette so rapidly that to the human eye it looked as though the game was more vibrant and colourful than any other. *Virtua Racing* also deserves a special mention, of course: the only Mega Drive title to run with custom hardware inside the cart. Compare and contrast with the Super Nintendo, where tons of the games were boosted with custom chips as a matter of course.

RG: Why do you think it has remained so popular with gamers?
RL: I'd say that there are a couple of reasons behind this. We saw Sega at its creative high points during the 2D era and the games still stand up pretty well today – which is how Sega can get away with emulated *Sonic* and *Streets Of Rage* games on Xbox Live Arcade. But there was also the fact that the console was such a huge sales success – it brought about a volume of titles that ensured that everyone had a favourite, or a nostalgic game experience they can still relate to.

RG: What is your best memory of the machine?
RL: I think it must have been when Sega sent over a *Sonic 2* cartridge to the *Mean Machines* office. The way things worked back then, you'd get sent a whole bunch of flashed ROMs you'd need to stick into a cart-shaped motherboard that slotted into the console. The anticipation back then was immense, and it was superb to see the game actually living up to – and surpassing – the expectation. Of course, next morning, when the chips went missing and we almost called the police, that wasn't particularly fun. Thankfully, it was just an over-enthusiastic staff member who was late to work.

• With the recent release of the new *Rambo* coin-op, Sega's relationship with the bullet-swallowing soldier spans 21 years.





'We had some fun times," recalls Perry. "Like *Terminator* was probably one of the first photoreal games, meaning it's actually us – the developers – photographed, scanned and used in the animations. And *Global Gladiators* was probably one of the first Mega Drive games with 'real' sampled musical instruments. It took a lot of memory and most developers wouldn't give the audio guy that much space. But it was Tommy Tallarico and he was keen to push the limits, so I gave him the space and he just went crazy. I think he got an award for that."

The early Nineties marked such a great time to be a gamer. It was a period where everything felt bold, new and exciting. The great 16-bit console war between Nintendo and Sega had brought gamers together and pushed videogames further into the public eye. From *Sonic 2* to *Super Mario World, Street Fighter II* to Sega's gore-ticking port of *Mortal Kombat*, with every new high-profile release the continual tipping of the scales was almost tangible. It was a fertile and memorable time, with everybody from gamers to journalists to developers staunchly picking a side to see how the battle would play out.

"Generally you were on one side of the fence or the other," remembers Perry. "The machines were similar, but with enough differences to divide programmers into two camps. I was one of the early developers on the Mega Drive, I got the original badly translated manuals from Japan and quickly fell in love with the hardware. This was one of the last series of machines where you were responsible for everything going on inside the machine. We programmed 100 per cent assembly language and pushed it to its limit. That was *fun*!"

And apart from the obvious early licensing deal that was struck between Sega and EA, what else drew Trip Hawkins to side with Sega and the Mega Drive?

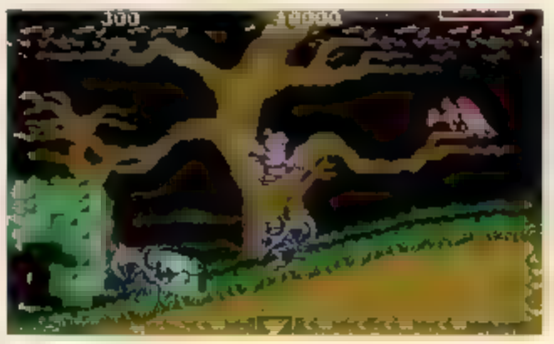
The Capcom Connection

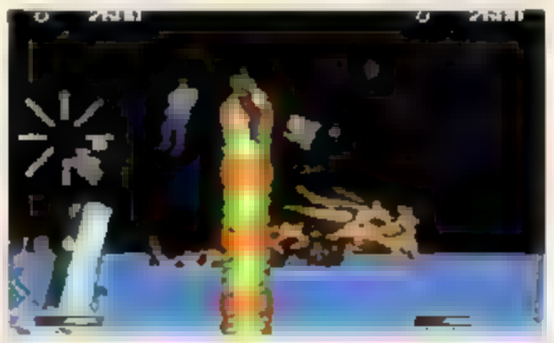
STRIDER
Strider is by far one of the most popular arcade conversions to ever appear on the Mega Drive, and at a colossal 8MB, it was also one of the largest earlier Sega carts, too. As a result, the acrobatic wall-affixing Strider Hiryu helped shift plenty of Mega Drive units for Sega on its release. Sadly, though, US Gold's Mega Drive sequel, *Strider Returns*, failed to live up the brilliance of its predecessor – although it hasn't affected Darran's worrying love for the ninja.

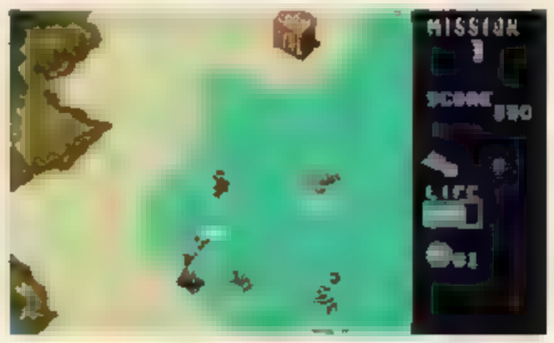
GHOULS 'N GHOSTS
For a time, *Ghouls 'N Ghosts* stood as the quintessential platform game for Sega's machine – not surprising when you consider it was programmed by Yuji Naka, the programming talent behind *Sonic The Hedgehog*. While the game is terribly unforgiving, Naka did at least do Mega Drive owners the courtesy of making this version easier than Capcom's devilish arcade game. *Ghouls 'N Ghosts* is a solid conversion of the classic coin-op, and a must for any Mega Drive collection.

FORGOTTEN WORLDS
Forgotten Worlds forms the final game in Capcom's *Jetpac Hero* series – a trio of games which also include *Section-Z* and *Side Arms Hyper Dyne*. Beginning life in the arcades, *Forgotten Worlds* found two nameless muscle-men fighting an evil alien race. Armed with bad dialogue and a cannon that could be spun 360 degrees, our heroes were tasked with slaying gargantuan bosses against a thumping rock soundtrack. The Mega Drive is home to the best conversion, too.

MERCS
The sequel to Capcom's run-'n'-gun classic *Commando* was a curious conversion. With multi-player annoyingly ousted, Sega decided to gear the game around the single-player experience and stop the potential street riots by including two versions of the game. The first is a straightforward port of the arcade game, while the all-new brilliant Original mode had the player fighting through seven new stages and freeing Mercs, which then became playable. Good one, Sega!







The Treasure Connection

GUNSTAR HEROES

Few companies have debuted w th a game as spectacular as *Gunstar Heroes*. Made up of d sgruntled Konam employees, Treasure s first game set an impossibly high standard of nnovat ve gameplay and astonishing visuals that became a standard for the company for years to come. Mixing the hardcore blasting of the *Contra* series with a wicked dose of humour, *Gunstar Heroes* s a frantic rollercoaster ride of a game that st ll plays br lliant y today. ...ttle wonder then that t had a compilat on named after t in Japan.

DYNAMITE HEADDY

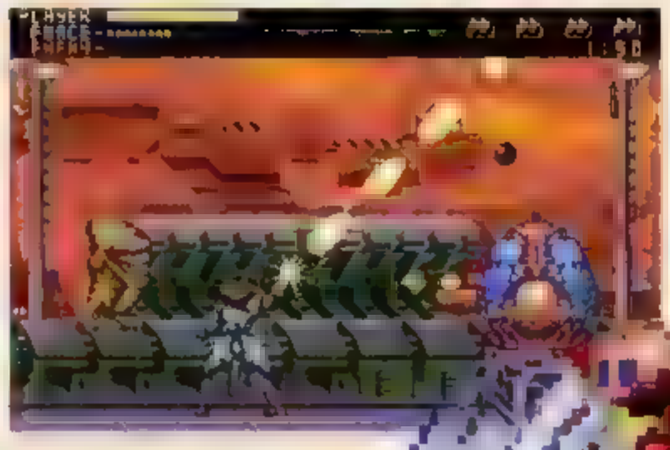
If *McDonald s Treasure Land Adventure* showed us the business side of Treasure, then this utterly nutty platformer released a year later proved that its surrea sense of humour was st ll well and truly ntact. W th ts gaudy visuals, huge bosses and hardcore action, *Dynamite Headdy* was a return to the Treasure that had made its name with *Gunstar Heroes* and delivered an unforgettable protagonist who had a different head for seemingly any occasion. Why he s never appeared in a sequel we ll never know.

MCDONALD'S TREASURE LAND ADVENTURE

Trust Treasure to take a licence based on a burger chain and actua ly turn it into a bloody good game. Wh le it lacks the depth of other Treasure titles, *McDonald's Treasure Land Adventure* is st ll head and shoulders above similar licences and proves that it's possible to make a great game out of anything. Yes, it's rather bland for a Treasure game, but it remains a beaut ful-looking title that defin tely deserves more recogn tion. Just don't confuse it with *Mick & Mack Global Gladiators*.

ALIEN SOLDIER

As well as being noted for their amazing aesthetics and exceedingly clever gameplay, many Treasure games have also made a name for themselves due to their insane toughness. *Alien Soldier* is no different and we're ashamed to adm t that even now, well over a decade after its original release, we've never completed t on a single cred t. Effectively little more than a boss rush – a format Treasure is rather fond of – *Alien Soldier* remains one of the company s most cha lenging games. We still love it, though.



"I th nk everyone knows by now that we had a better deal with Sega, but EA put plenty of games on the SNES," he says. "The reality is that Sega got to market much earlier and they had a better machine. Nintendo lost time because they were trying to make the SNES backwards compat ble. This resulted in the poor choice of the 65010 processor that could run the 6502 instruction set. But they never got it to work. What you ended up with was a slower machine with baggage that it was lugging around that had no purpose. The SNES did have more colours but it animated too slowly, so who cared about the extra colours?"

Se ling an astonishing 30 million units, the Mega Drive was the most important console Sega released in its 20-plus years in the videogame hardware market. It marks a period of dizzying and magnificent heights that the company would never quite reach again. But while the Mega Drive can be attributed to Sega's successes, it can also be entwined in the company's protracted departure from the hardware market. When Sega looked to extend the life of the Mega Drive with two life-support add-ons – the Mega-CD and 32X – it would prove a damaging and costly misstep for the company. Wh le the add-ons brought with them some fantastic and ambitious titles, such as the astonishing delights of *Sonic CD*, *Sylpheed*, *Jurassic Park*, *Star Wars Arcade* and *Virtua Racing Deluxe*, the quantity of must-have games just wasn't there – and in the case of the 32X, almost nonexistent. Many of the games that appeared on the Mega-CD were spruced up carryovers from the Mega Drive as developers hurried to get games to the platform quickly, and the public was quick to real se. This would have a seriously damaging effect on Sega's strong corporate image and also lead to a loss of confidence among the loyal customer base the Mega Drive had built up for Sega.

"Companies feel like they have to try to extend the life of a great brand with these kinds of gimmicks," explains Hawk ns. "The Mega Drive had only 128KB of RAM. Real stically, the Mega Drive could not pretend to be 32-bit when there was nothing 32-bit about it. And it could not rationally use CD storage without much more memory and a comp etely different architecture."

With the recently released *Mega Drive Ultimate Collection* proving so popular in early 2009, it's clear that the Mega Drive has kept its fair share of fans and fo lowers after Sega eventually pu led the plug on the console. And with a dedicated community across the web, and the impressive quality of homebrew efforts such as *Beggar Prince* and *Pier Solar* remind ng us of how accessible a platform the Mega Drive is to program for, it looks like Sega s 16-bit saviour will continue to remain in our minds for many more generations and console wars to come.

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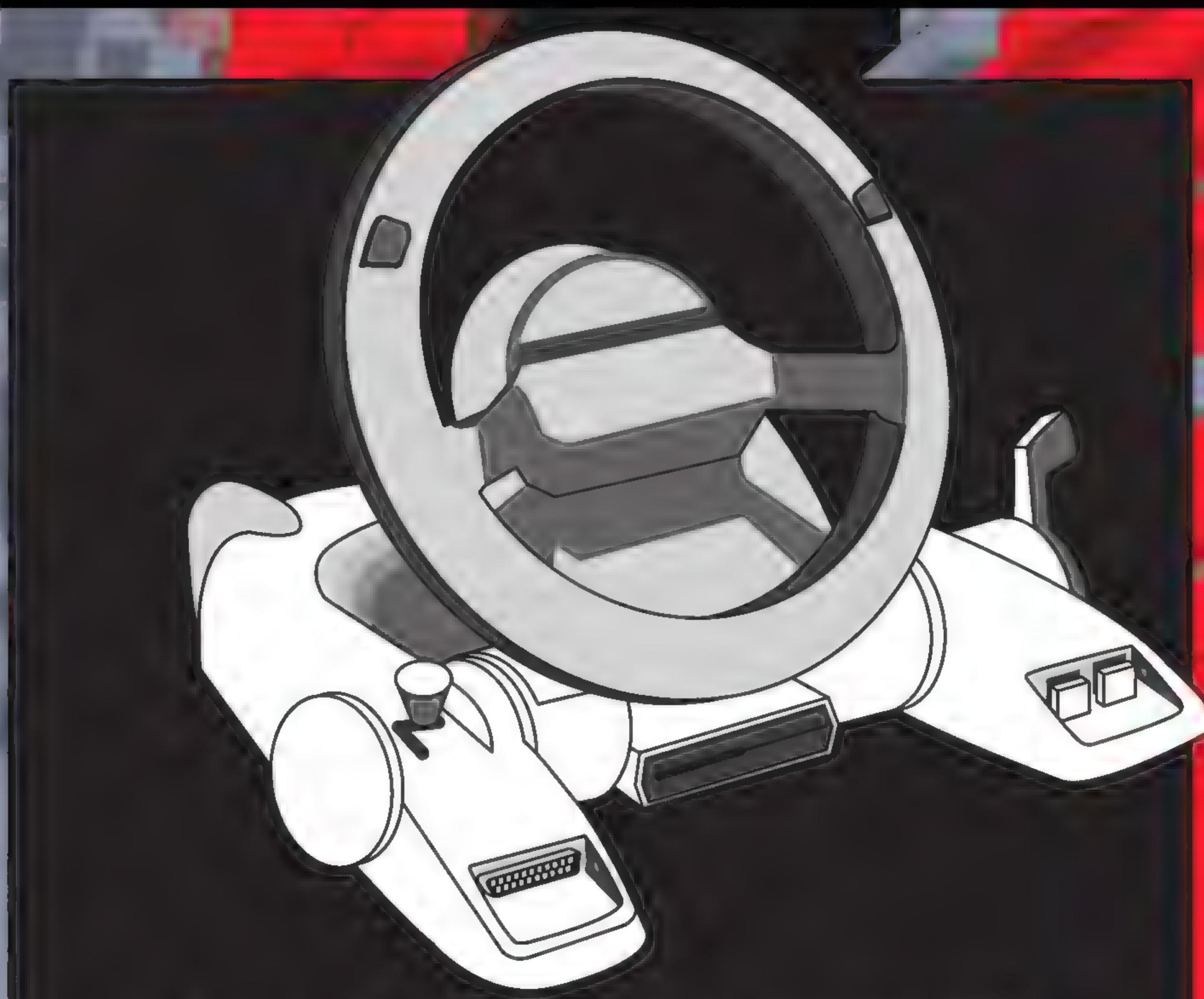


KONIX: BEST OF BRITISH

WITH THE DREAM COLLAPSING JUST WEEKS AWAY FROM BECOMING REALITY, CRAIG VAUGHAN INVESTIGATES THE DEMISE OF THE KONIX MULTI SYSTEM, THE BEST BRITISH CONSOLE THAT NEVER WAS...

With the new millennium well under way, today's joystick jockeys take for granted the continued dominance of Sony, Nintendo and Microsoft within the world of computer and videogames. Rewind 20 years, though, and it's clear that were it not for the fickle hand of fate, this triumphant triumvirate of foreign behemoths might not have had it all their own way. In fact, with a touch more luck, Britain could have been leading the world with its sixth or seventh iteration of a very British console.

HOPES AND FEARS

Even trivia freaks would be hard pressed to place Merthyr Tydfil Football Club as the spiritual resting place of a stillborn console that promised the earth before descending into hell. But it's here, at a club that finds itself suffering mid-table mediocrity in the Southern League Premier Division, that Wyn Holloway – father of the console and MD of the long-since defunct company Konix – finds himself chairman. Back in the late Eighties, Holloway's fledgling company, Konix, was enjoying something of a purple patch. Confidence was high and balance sheets favourable. Gamers in Britain and abroad were lapping up the joysticks sold by the company and the self-styled Speedking was leading the way. In fact, Holloway's aptitude for innovative design had even led to the creation of a sister company, Creative Devices Ltd – a think-tank that developed technical products sold for use by other companies.

By 1989, Holloway's bent for tinkering with electronics had given birth to a most remarkable games controller, the Konix Multi System. Its simplicity of design meant

KONIX: BEST OF BRITISH

Above *(from left to right)*

onsoles prevalent at the time. Were the story to end there, Konix

included plug-in pedals, force feedback for the steering

mbridge, England. Founded in 1986 by Martin Brennan, Ben

sensation. Other promises included a helicopter controller, a recoi ng

a blindingly fast piece of 8-bit hardware that easily outstripped any

machine's debut, with prototypes available for eager fans to inspect

olloway, though, who saw that the technology might be the answer

demonstrate the obvious merits the machine had over its competitors

Ninja 2 from System 3 and *Hammerfist* from Vivid Imag

Ocean Software had committed themselves to

Above Digitally-designed artwork for the Konix Multi System, given away as a free gift to magazine subscribers

Above [illegible] the hydrofoil

Above Kevin Gilbert, founder of Artech Digital Entertainments who wrote the software development tools for Konix

CTW
11.9.89 BRITAIN'S TOP COMPUTER TRADE WEEKLY ISSUE 253

Konix takes soft option for Multi-System titles

Konix boss Wyn Holloway (right) and software man Jon Dean

Konix' much anticipated Multi-System took another step towards its autumn launch last week as the first line up of titles for the machine was unveiled — along with Konix' own new software label.

The presentation took place at the firm's Ebbw Vale headquarters and was attended by a gaggle of reviewers from the consumer press which, according to Konix, was extremely impressed with the System's potential.

Among the independent publishers which have committed to supporting the machine are Logotron, Ocean, Empire, Llamasoft, Microids, Electrocoin, Titus, Kreatis, Vivid Image and System 3.

To supplement that, Konix has launched its own software label dedicated entirely to the Multi System and called, staggeringly enough, Konix Software. It will be headed up by industry veteran Jon Dean, once of Activision and Atari.

The label will be controlled by a Konix division known as Creative Design Software, which will commission various development houses to write specific titles for the console. So far there are at least five titles lined up for release under the Konix name.

One of the games, *Bikers*, will in fact be bundled with the Multi-System. The other titles are *Revenge of Stargliders*, *Rotox*, *Tunnels of Doom* and *Konix Chess* which intriguingly promises to somehow make use of the Konix power chair.

According to Konix, the label's main job is to make sure there are no gaps in the line-up of titles for the machine and that there are games in all genres rather than a dominance of shoot-em-ups or a surfeit of adventures.

The firm is promising a team of 24 titles for the machine by September 1990 including "an art and music toy".

Left *Computer Trade Weekly* details the [illegible] Konix's own software [illegible] Dean (left) and Wyn Holloway are pictured

[illegible] Atari ST, Amiga and PC and is [illegible] enhanced joystick with [illegible] ports.

FUTURE SHOCK

Despite the [illegible] Konix Multi System [illegible] foresight Holloway himself [illegible] the console for a [illegible] games machine when doing the press [illegible] the Multi System's intended launch date saying "what [illegible] gamers want. Do they want the [illegible] completely take over the business and dictate to us what we can [illegible] Who knows and how many bits we can see? With the dead [illegible] begun the slow but inevitable journey to the very scenario he envisaged: locked games, controlled non-simultaneous worldwide releases and publishers having to pay [illegible] to code platform specific software. Reason enough to [illegible] And that's now history, [illegible] the death of [illegible] piece of gaming hardware. As is often the case however [illegible]

KONIX: BEST OF BRITISH

Left: This is the vision Holloway had for

Right: The Konix with attachment

EXPERIENCE THE REALITY

www.gustogames.com

From left to right: The Powe was to have a dual fi keypad

Pedal to the metal as the Multi System gets another peripheral

THE KONIX CONNECTION

e involved in just about everything. There were no 'teams' to speak

"I WAS IMPRESSED. A EUROPEAN GAMES CONSOLE? WOW! REMEMBER, THIS WAS AT A TIME BEFORE NITENDO AND SEGA HAD CONQUERED OUR LAND, AND A TIME WHEN HARDLY ANY OF THE GAME DEVELOPERS OR PUBLISHERS HAD THE OPPORTUNITY TO WORK ON CONSOLES"

- JON DEAN ON THE PROSPECT OF A EUROPEAN-DEVELOPED CONSOLE

GADGETS AND GIZMOS

KONIX: BEST OF BRITISH

Below A

THIRD-PARTY SUPPORT

DEV TOOLS

Left *Computer & Video Games* did its own two-page spread on the Konix machine

Dear Askew, Attention to Detail ATD [illegible] software [illegible] for developers. For G [illegible] ATD, as it [illegible] were working on an Atari [illegible] market 1988 when we [illegible] emulator [illegible] A [illegible] writing our own [illegible] to avoid [illegible] developers as easy as [illegible] them away this would [illegible] we [illegible] with [illegible]

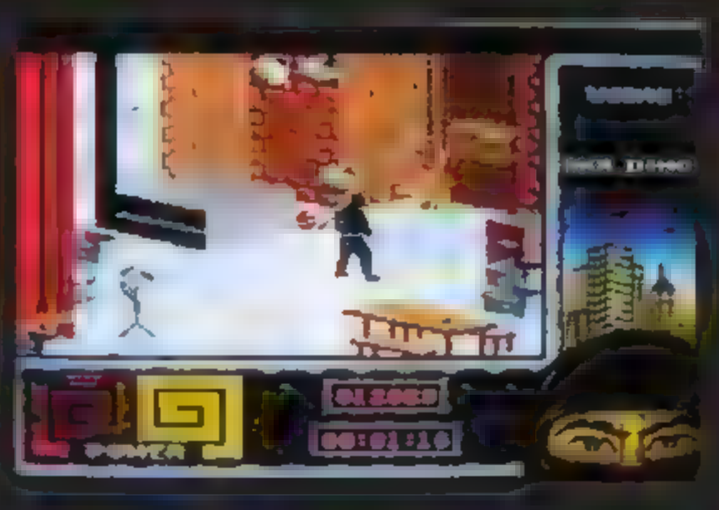
[illegible] prototypes and with [illegible] ATD [illegible] problem and [illegible] there were two [illegible] mind these [illegible] power over [illegible] by no way [illegible] the [illegible] styles [illegible]

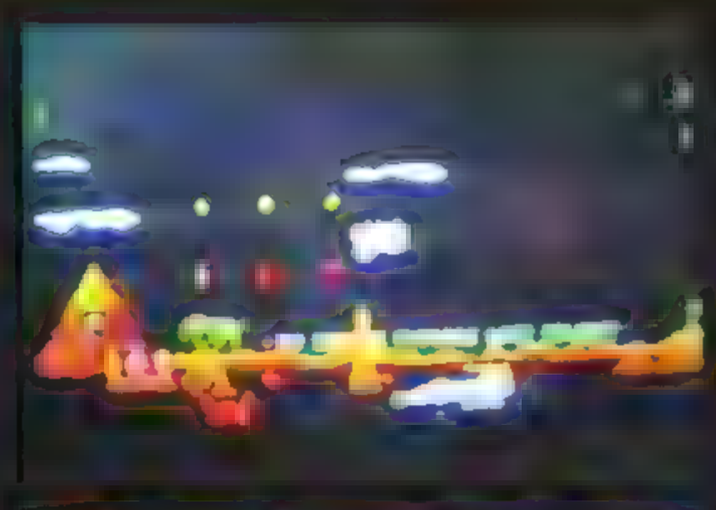
[illegible] ATD [illegible] What A [illegible] spoiled [illegible] The average [illegible]

SOFTWARE SPOILS

Two dozen titles were lined up for launch during the first year of the Multi System's life. Included in the range were the following games:

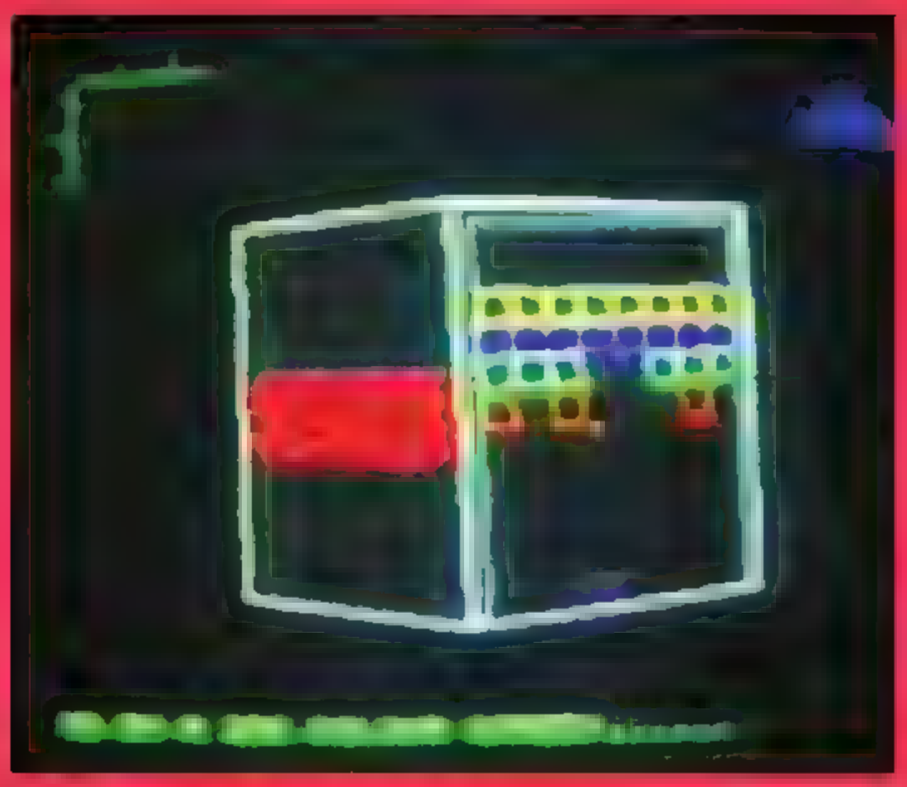
BIKERS (ARGONAUT/KONIX)
KONIX CHESS (KONIX)
HAMMERFIST (VIVID IMAGE)
LAST NINJA 2 (SYSTEM 3)
MANCHESTER UNITED FC (KRYSALIS)
MR DO'S WILD RIDE (ELECTROCOIN)
MUTANT CAMELS '89 (LLAMASOFT)
REVENGE OF STARGLIDER (ARGONAUT/KONIX)
ROTOX (BINARY DESIGN)
RUN THE GAUNTLET (OCEAN)
SAILING (ODE)
STARRAY (LOGOTRON)
SUPER SKI SIMULATOR (MICROIDS)
TRIP-A-TRON (LLAMASOFT)
TUNNELS OF DOOM (ATD/KONIX)
VENDETTA (SYSTEM 3)





KONIX: BEST OF BRITISH

Right The 3D cube demo impressed the press at launch, but the Multi System proved to be a hardware dead end



"TWO THINGS STRUCK ME ABOUT ALL THE GAMES I SAW. THEY SEEMED FASTER THAN EVERYTHING ELSE, AND MORE COLOURFUL. I RECALL ODE'S SAILING AT A VERY EARLY STAGE AND REMEMBER BEING SERIOUSLY WORRIED THAT PLAYERS MIGHT GET SEASICK IF USING THE POWER CHAIR"

- JON DEAN ON THE MULTI SYSTEM SOFTWARE LINE-UP

HARDWARE HASSLES

So why didn't the Konix ever see a retail release? Dean answers [illegible] things weren't going well with [illegible] platform was [illegible] was the lack of [illegible] had been [illegible]

LOOKING BACK

[illegible] The Konix Multi System [illegible] Bit down a [illegible] Bros [illegible] that became something of a [illegible] as [illegible] Konix game [illegible]

UNDER THE BONNET

The Konix Multi System wasn't vapourware – working machines existed and were seen in public. Jon Dean recalls getting his hands on a prototype Multi System: "It was an astonishingly clever bit of kit, but without it in front of you it's difficult to describe effectively how it worked. Imagine an inverted 'U'. Imagine that the outside of the 'U' arch forms the base. The inside of the arch is a solid piece, or column, that moves up and away from the base – attached to this is a flight yoke, in a 'W' shape. The solid column can be fixed in position, or it can freely move back and forward just like a real flight stick. A potentiometer allows software to read the position of this column, so it has multiple game applications. It also vibrates.

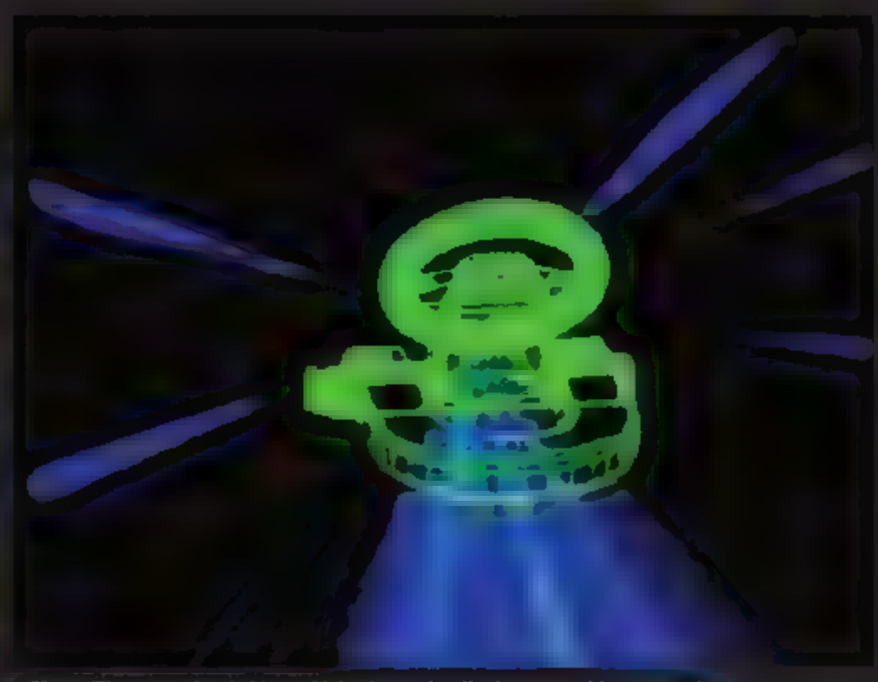
"Two 'fire' buttons are included where your thumbs would be. The ends of the flight yoke can be twisted sideways and back – suddenly they're handlebars for a bike, jet ski or motorbike. Twist the handlebars back to the original vertical position, and clip on a circular overlay – now it's a steering wheel, with holes allowing you to access the 'fire' buttons. There's a pedal unit hooked to the back of the base, offering four different inputs. These could be used by games as brake and accelerator, or perhaps they could be used for caterpillar or helicopter rudder controls. The base included two joystick ports. A helicopter controller could be connected to the joystick port, also a light gun and a conventional joystick. On the side of the base was a three-position gear-shift stick, which could be used by the software like a 'select' switch, for volume or as a true gear-change device."

Spec-tacular

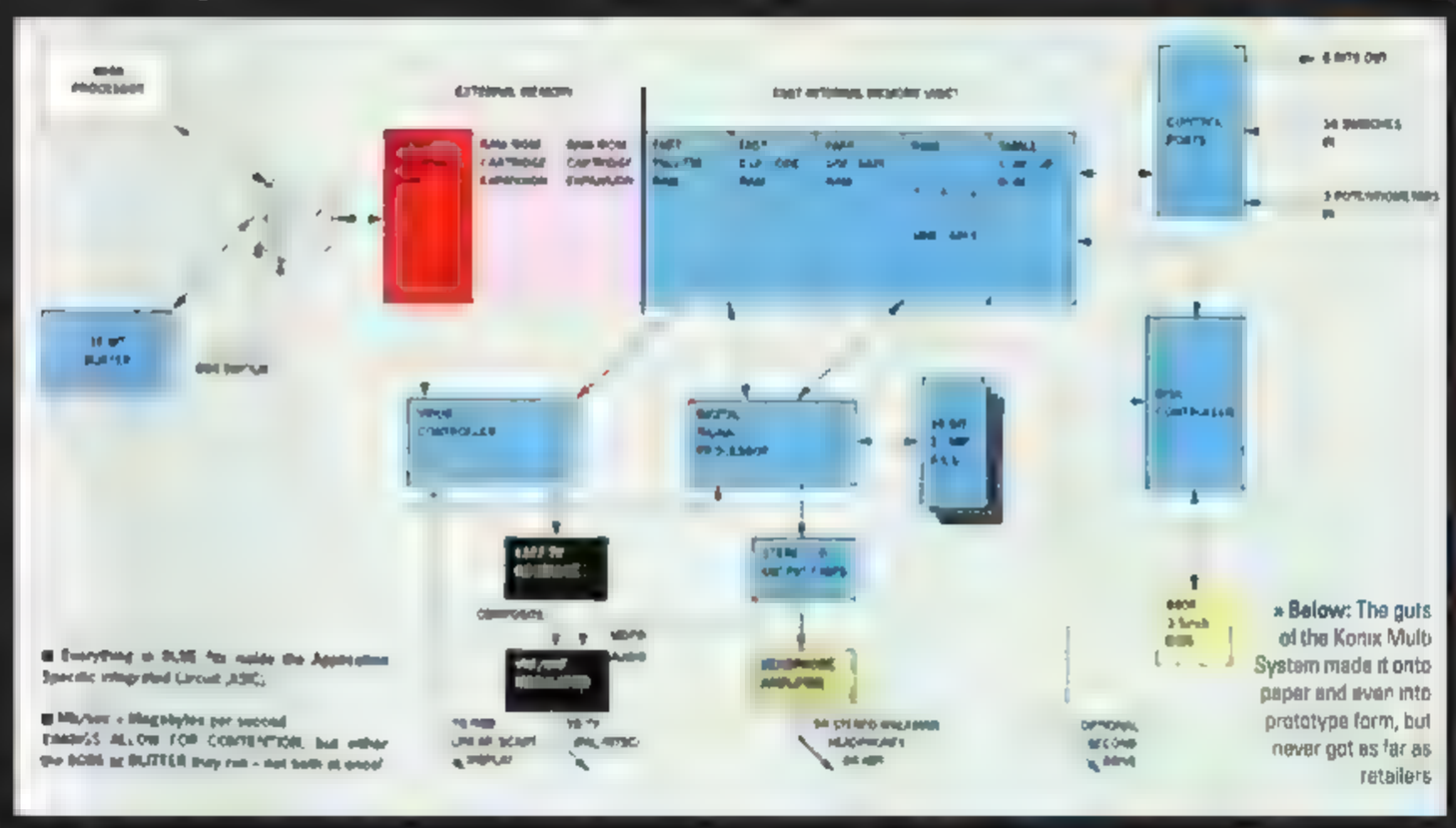
Considering the prevalent technology of the time, the Konix Multi System's circuit board was a wonderfully compact 6x4.75-inches. The machine boasted a 16-bit custom chip that contained the video generator, colour palette, disk controller, Blitter, ROM, fast RAM, 12 MIP Arithmetic and Logic Unit, RISC Digital Signal Processor (DSP) and digital and analog ports. The graphics resolution was limited to suit the need to output to PAL and NTSC standards, with the best resolution being 256x200 oblong pixels in 256 colours. This used one byte per pixel, giving incredible speed but taking 50Kb for each screen. The best resolution the machine could muster being 512x200 in 16 colours, again using 50Kb.

The processor and Blitter took turns controlling the main memory – 128Kb was initially budgeted for, though this was later planned to be increased to 256Kb, with room for an additional 512Kb to be fitted to a RAM-expansion cartridge. The 8086 ran at three-quarters of the speed of a typical Amstrad portable. Heavy maths and memory operations were handled by the DSP and Blitter to increase speed. The Blitter was fastest, handling one byte per pixel, there being no need to read background data before writing. Alternatively, the Blitter could move the contents of memory at almost 5Mb a second, after allowing for display time. It supported transparent colour and could detect collisions automatically. The Digital Signal Processor and palette had their own uncontended data channels inside the ASIC. The Harvard architecture DSP read instructions and data simultaneously, at a steady 24 million words a second.

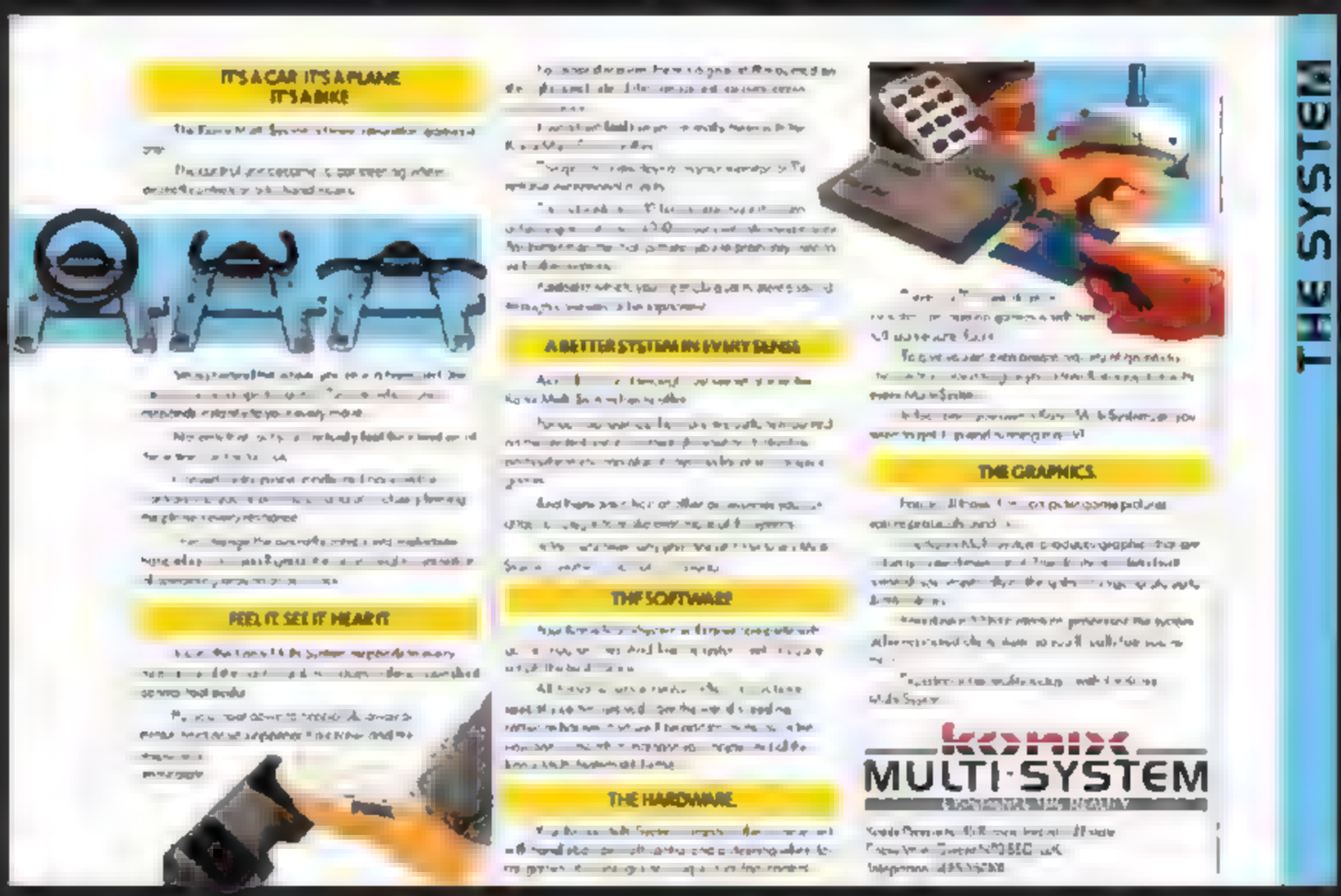
A 16-bit arithmetic and logic unit, plus an internal ROM lookup table, helped the DSP to synthesise FM sound and generate 3D displays at awesome speed. The Multi System hardware excelled at 3D colour panel graphics. Together the DSP and Blitter could process 4,000 3D vertices per frame. The DSP had its own fast RAM; the Blitter could rewrite all the DSP code RAM in one TV line. Almost everything was memory-mapped, giving the DSP a great deal of control over the Blitter and video controller. Its multiplication instructions were said to be over 50 times faster than the 68000 in the ST or Amiga.



» Above: The promotional video sold the dream, but Konix never sold any consoles



» Below: The guts of the Konix Multi System made it onto paper and even into prototype form, but never got as far as retailers



» Above: An unusually factual advert for the time details exactly what the Konix Multi System had to offer gamers

FALLEN STAR

A good number of games were lined up for the launch of the Multi System, but none were more anticipated than Logotron's *StarRay*..

Brian Pollock is 38 and lives in Ayr, Scotland. He's currently employed at Picsel Technologies, but back in 1989 he was one of the chosen few fortunate enough to be signed up to create a Multi System game. Pollock takes up the story: "Prior to the Konix Project, I'd worked on a handful of games for the Spectrum, C64, Amstrad and Atari ST, writing in assembler, mainly Z80, 6502 and 68000. But I hadn't done any PC work. Nonetheless, I found myself on a train heading to a Konix conference somewhere in Wales, reading an 8086 programming book to get myself up to speed.

RAY OF LIGHT

Pollock recalls being asked to take on a port as part of his work for the system: "I was commissioned to code *StarRay*, and as far as I was aware, it was the only port being written for the Multi System. As best I remember, Steve Bach of VectorDean originally developed *StarRay* before going on to code the *James Pond* series. Chris Sawyer of *Railway Tycoon* fame had previously coded *StarRay* for the PC and I recall my initial impressions being that it looked a lot like an updated *Defender* clone. Thanks to the graphics hardware within the Multi System, there was plenty of room for improvement over previous incarnations. For instance, I was able to add extra parallax layers, and the colour resolution allowed for some depth-of-field effects to be added too.

"The Multi System was an impressive console, even without the attention-grabbing chair. It might look like a low-end PC today, but at the time you'd have paid nearly £2,000 for a mid-range PC (say a 16MHz 286), which would have comparable graphics to the Multi System (VGA 256 colours at 320x200), but probably no sound card, unless you'd paid extra for an adlib board. Unlike other game systems available, the Multi System's sound was entirely software driven. All other home computers at the time had hardware

Below: The Commodore 64 version of *StarRay*, ported by Psychodelic Software

sound architecture. Even the most powerful and impressive – the Amiga – had a fixed number of channels. The Multi System was different: it had none of the usual sound hardware, but benefited from having a Digital Signal Processor (DSP) and stereo output. This meant that you could choose how many sample channels you had, or how many chip-sound channels, as well as how complex each one was."

Pollock remembers the work in progress version of *StarRay* being well received by his peers: "Jez San of Argonaut said of *StarRay*'s music: 'It sounds like a John Carpenter soundtrack,' referring to *Assault On Precinct 13*. The music must have been highly thought of, because I was asked to do something similar for the *Last Ninja*. I don't remember doing it, but I remember being asked."

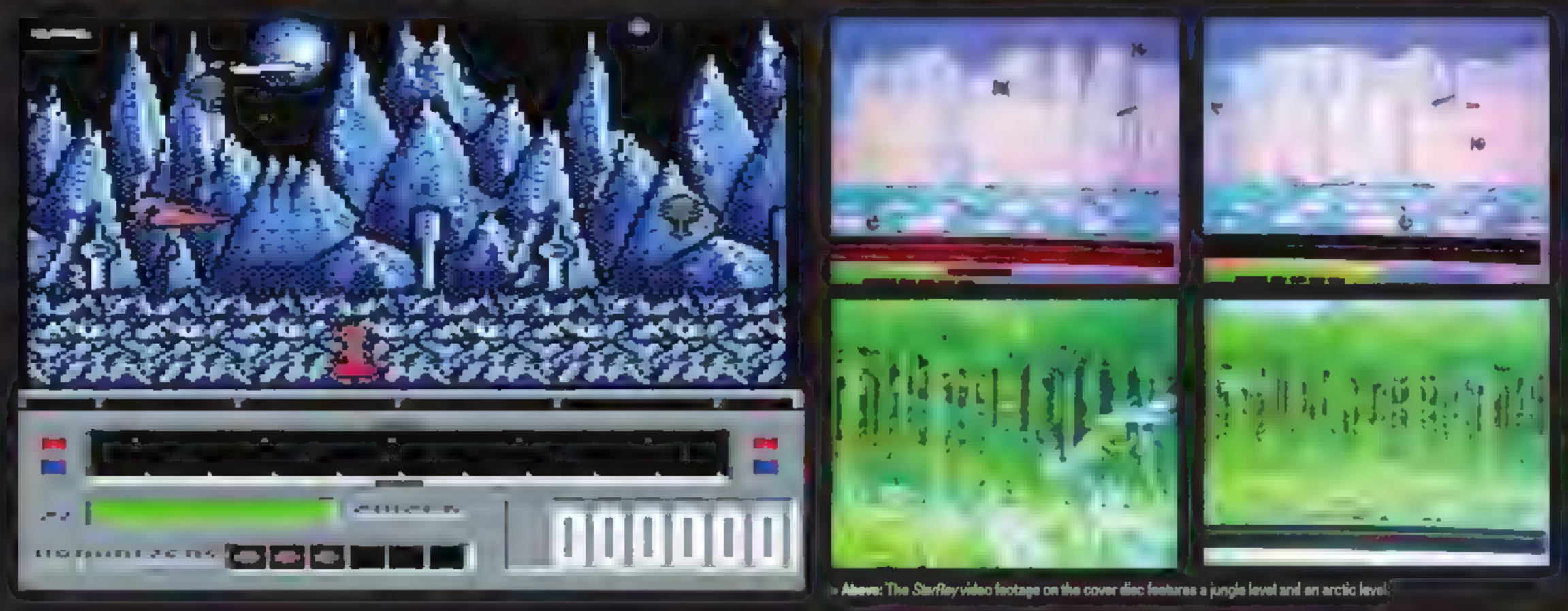
LIFE'S A BEACH

Work on *StarRay* went smoothly: "I spent much of the project waiting for new revisions of the hardware to appear. That gave me plenty of time to tinker with the graphics, sound effects, music and gameplay, but other than that I spent a lot of time on the beach. *StarRay* was one of the few games at all the shows and conferences that looked and sounded like a complete game. Indeed, it was pretty much finished – graphics, gameplay, sound and music, everything was there. The final piece of the jigsaw was making sure it loaded from disk. The first release of the development boards had no disk drive. Everything was sent down a wire from a PC to the dev board. My second and final board did come complete with a disk drive, but as luck would have it that only arrived days before the game and the Multi System were cancelled.

"As an aside, I remember seeing a BBC QED program about the dangers of computer games, which, bizarrely for me, featured a clip from the Multi System version of *StarRay*. It was definitely my port because I recognised the superior graphics! What spooked me was that Maggie Philbin's voiceover stopped for five or ten seconds while they showed the *StarRay* clip, and then picked up afterwards, as if nothing had happened.

"It's a shame that the Multi System failed because Holloway was a larger-than-life character. The Konix name was well-known and well-respected by gamers in the UK at the time. The organisation, developer tools and software support were excellent, and with the initial round of games coming from big players, the confidence and enthusiasm from developers should have led to the UK setting new standards in console entertainment. But of course, that's not what happened."

Pollock is grateful for his involvement with the project because it opened up new career opportunities: "After the Konix Project I had some newly acquired x86 skills, and a PC, so naturally I moved into developing PC games. As a postscript to my involvement in the Multi System story, I recall that sometime after the Multi System disappeared, some ex-Multi System engineers approached me in search of a programmer and working dev kits with a move to China in mind. That must have been in 1992, but my son's birth was imminent so I declined, though I always wondered what their plans were.



» **Above:** The *StarRay* video footage on the cover disc features a jungle level and an arctic level.

"ONE OF THE FLARE DESIGNERS WORKED WITH ARGONAUT AND CREATED THE SFX CHIP FOR THE SUPER NINTENDO. IT'S A LITTLE-KNOWN FACT THAT THE PROPOSED RETURN OF STARGLIDER KONIX GAME EVOLVED INTO STARFOX" - JON DEAN ON THE SURPRISING ORIGINS OF NINTENDO'S STARFOX (AKA STARWING)

RETROINSPECTION

Nintendo GAME BOY™

SELECT

START

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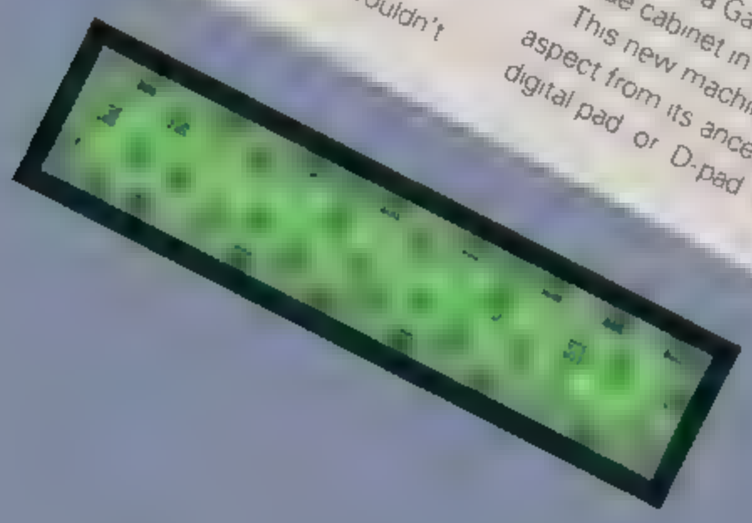
GAME BOY

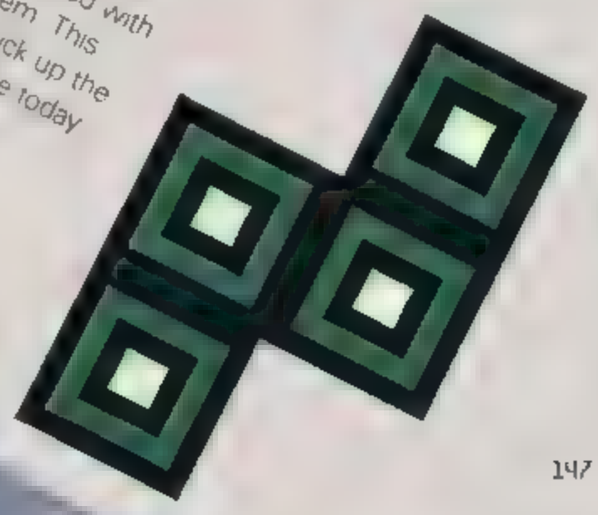
The origins of this seminal console can be traced back to one of Nintendo's early portable success stories – the Game & Watch range. Created by assembly-line engineer turned design guru Gunpei Yokoi and his highly talented team at Nintendo Research and Development 1, the pioneering line of LCD handheld games showcased basic technology but utilised it in innovative ways, ensuring mass appeal and gaining its manufacturer mountains of cash in the process. Yokoi concocted the idea of 'Lateral Thinking of Withered Technology', a design philosophy that focused on using inexpensive and familiar components in new and interesting ways. This model carried through to Yokoi's next project, which made the success enjoyed by the Game & Watch franchise look almost inconsequential by comparison.

By the time the Eighties were drawing to a close, Nintendo's standing in the videogame industry was impressive. The NES had single handedly saved the world console market from extinction following the cataclysmic crash of 1983 and the aforementioned Game & Watch range was still shifting a highly respectable number of units. However, Yokoi knew that the technology behind these LCD games was beginning to look out-of-date when placed alongside the experiences offered by the NES and other 8 bit home computers and so he began his quest to create a successor. As was the case with the Game & Watch, this new machine wouldn't use revolutionary features to get itself noticed. Yokoi's design beliefs were too strong. He knew that if he attempted to create a console that was at the cutting edge of technology, it would be expensive and therefore lack mass-market appeal. Instead he looked at building a device that was economical to manufacture and perfectly suited for its purpose: that of mobility.

This new console was shown in prototype form in 1987 and later demoed at various trade shows. The effect it had on the development community was electrifying. "It was really pretty amazing and exactly what we needed," says Rare's Paul Machacek who coded the fantastic Game Boy title *Donkey Kong Land* and still works within the firm as a program manager. "We had expectations about a handheld gaming system when Rare founder Tim Stamper went to Consumer Electronics Show in the US, but he returned with news about a completely different handheld gaming system. This was in the days before the internet and you couldn't just pick up the latest photos and news from the show floor on websites like today. I can't remember whether we had to wait for a monthly magazine or got something shipped from Japan, but the first time I saw a Game Boy I just thought it looked like a little arcade cabinet in your pocket."

This new machine inherited one vitally important design aspect from its ancestor the Game & Watch – an 8-way digital pad or D-pad as it's more commonly known. We





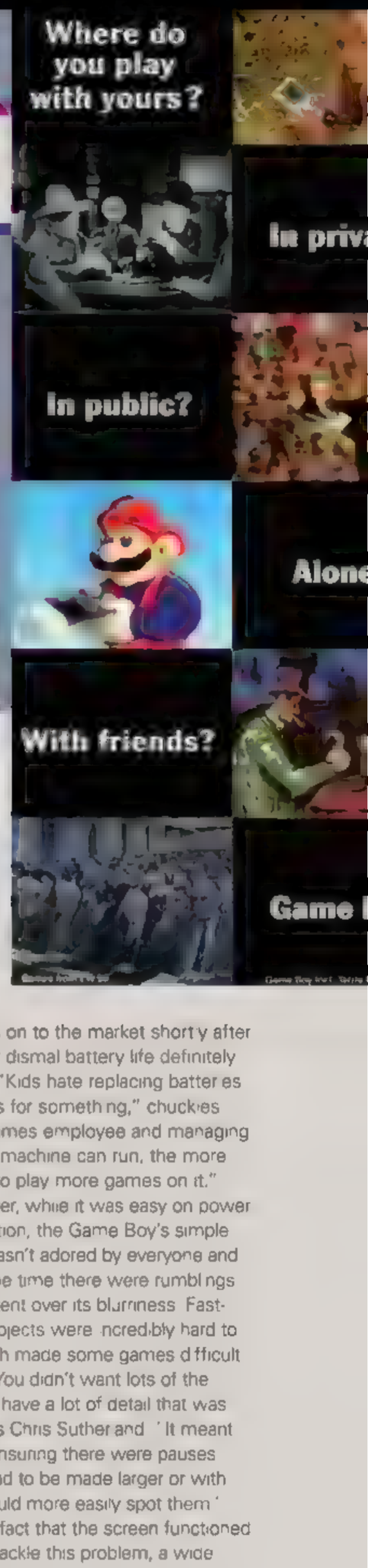
COMMUNITY

Euro-Asia Game Boy

LittleSoundDJ Workshop

Nintendo Life

World of Game Boy



INFORMATION

Year released: 1989

Original price: £69 99

Buy it now for: £5

Associated magazines: GB Action, C&VG Go! supplement, Mean Machines, Nintendo Magazine System

Why the Game Boy was great... It offered true portability in an era when manufacturers were seemingly falling over themselves to produce battery-hungry behemoths that required you to carry a power supply with you at all times. With excellent support from practically every software publisher on the face of the planet, the Game Boy effortlessly overcame its monochrome shortcomings to become one of the most successful pieces of videogame hardware the world has ever seen.

take this interface for granted now, but it was Yokoi and his team at Research & Development 1 that expanded upon the concept. Sensing that joysticks would impinge on a handheld's essential portable nature, Yokoi conceived the D-pad – a flat controller that would not protrude from the casing of any handheld to which it was attached. The concept also found its way on to the NES where it was equally successful. The NES in turn influenced several other aspects of the Game Boy interface – the familiar A- and B-buttons were present, along with the Select and Start buttons. And this shared control method was beneficial in two ways. First it allowed NES owners – and trust us, there were plenty of them – to effortlessly pick up the play this shiny new portable, and second it also made it easy to port popular NES franchises to the machine.

As the Japanese release date approached, Nintendo confessed that it had high hopes for the device. President Hiroshi Yamauchi confidently predicted that it would sell over 25 million in the first three years – a bold claim for the time. A few people might have scoffed at such optimism, but when the machine effortlessly sold 300,000 units in its first day on sale in Japan in 1989, such scepticism seemed foolishly misplaced. It was painfully obvious that Nintendo – and Yokoi – had struck gold once again.

> **"Battery life helped the Game Boy to win the war"**

Software played a massive role in this victory, and no game is more significant in shaping the Game Boy's history than the ultra-addictive puzzle title *Tetris*, created by Russian programmer Alexei Pajitnov. Although this legendary game was already widely available on PC at the time, its appearance on the Game Boy is arguably the reason it is remembered so fondly today. Former CEO for Nintendo of America Minoru Arakawa witnessed a demonstration of the puzzler at a trade show in 1988 and moved quickly to ensure *Tetris* became the Game Boy's first killer app. It was included as a pack-in title in every region except Japan and became instrumental in cementing the console's reputation as a must-have gadget in America, where the initial shipment of 1 million consoles sold out within a matter of weeks.

As was the case with the Game & Watch, the Game Boy made use of LCD technology, but instead of static images, it boasted a dot-matrix screen and could therefore display 160x144 individual pixels. It was monochrome, lacked lighting and could only display four different shades of grey, but it's without a shadow of a doubt one of the main reasons that the console was such an enormous success. It meant the machine was incredibly energy efficient by the standards of the time, and although it's rumoured that several of Nintendo's executives put pressure on Yokoi to adopt a more visually impressive colour screen, his approach was ultimately vindicated when rival manufacturers released their full-colour, backlit portable machines on to the market shortly after Nintendo's handheld launched. Their dismal battery life definitely helped the Game Boy win the war. "Kids hate replacing batteries. It requires having to ask your parents for something," chuckles Dylan Cuthbert, former Argonaut Games employee and managing director of Q-Games. "The longer a machine can run, the more people enjoy themselves and want to play more games on it."

However, while it was easy on power consumption, the Game Boy's simple screen wasn't adored by everyone and even at the time there were rumblings of discontent over its blurriness. Fast-moving objects were incredibly hard to see, which made some games difficult to play. "You didn't want lots of the screen to have a lot of detail that was moving continuously," explains Rare's Chris Sutherland. "It meant keeping the backgrounds plainer or ensuring there were pauses in the scrolling. Objects like bullets had to be made larger or with significant outlines so that players could more easily spot them." This problem was aggravated by the fact that the screen functioned best when viewed in direct light. To tackle this problem, a wide variety of bolt-on peripherals were developed that not only added light sources but also magnified the display. The usefulness of such devices was questionable at best; when installed they rendered the Game Boy distinctly unportable.

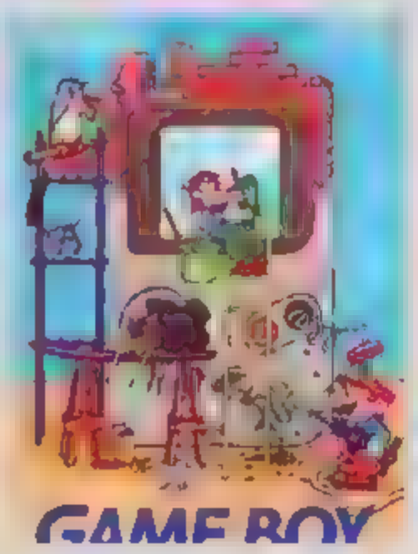
More software followed, with early hits such as *Super Mario Land*, *Baseball*, *Castlevania II: Belmont's Revenge* and *Contra* helping to maintain interest in the console. As had been the case with the 8-bit NES, the Game Boy enjoyed a superlative degree of third-party support with all the big names in the industry backing the console with their software. Konami, Square, Capcom, Irem and Hudson – not to mention plenty of other publishers and developers – all pledged their support for Nintendo. This resulted in an avalanche of software and made it very hard for such rivals as Atari and Sega to gain a foothold, despite their more technically powerful Lynx and Game Gear hardware.

As the years rolled by, the Game Boy's popularity remained buoyant while opposing handhelds fell by the wayside. This success was no doubt assisted by quality games such as *The Legend Of*

• With the Game Boy, you could now play your games anywhere, alone or with friends

• An advert for Irem's Game Boy conversions of *R-Type* and *Kung Fu Master*

• This Game Boy was owned by a US soldier and damaged in the Gulf War yet it still continues to function and is on display at the Nintendo World Store in New York



Zelda: Link's Awakening, *Super Mario Land II*, *Donkey Kong Land* and *Metroid II: Return Of Samus*. However, it was the Japanese release of the first *Pokémon* title in 1996 that catapulted the Game Boy into uncharted realms of commercial triumph. Sadly, this second wind was something of a double-edged sword for the monochrome marvel. It resulted in Nintendo looking into successors for the ageing hardware – albeit without the help of Yokoi who left the firm in disgrace after the failure of the Virtual Boy and later met a tragic end in a road traffic accident – and the first baby steps were made with the Game Boy Pocket in the same year that *Pokémon* made its Japanese debut.

Essentially a scaled-down version of the machine that boasted a sharper screen and ran on two AAA batteries, the Game Boy Pocket revitalised hardware sales and represented a much-needed aesthetic update to kept the console relevant in the increasingly fashion-conscious PlayStation era. However, another upgrade wasn't far off and this time Nintendo enhanced the concept far more convincingly – the Game Boy Color delivered the bright and attractive visuals that fans had been clamouring for since the early-Nineties and although the machine was based heavily on the existing Game Boy tech (in fact it was backwards compatible with existing black-and-white software), it essentially spelled the end for the original 'breeze block' version of the machine. As the Color variant gained popularity, over 50 million of its monochrome siblings were relegated to the back of drawers and cupboards the world over.

Given the massive popularity of the Game Boy, finding programmers with experience in creating software for the machine is like shooting ducks in a barrel. "I first encountered the Game Boy the first day I started working at Rare back in mid-1989, and it hadn't even been released then, so it was definitely a surprise," recalls Sutherland. "Although the original looks a bit bulky nowadays, back then it seemed impressively compact."

However, in those early days, coding for the Game Boy wasn't exactly a walk in the park. "Part of the challenge in developing for Game Boy was that there was limited documentation, it was usually some very basic hardware information that was translated from the Japanese," continues Sutherland. Thankfully the CPU that powered the portable was at least known to programmers. "At the Game Boy's heart was a castrated Z80 – a CPU I was very familiar with from the Spectrum and Amstrad CPC," explains Jon Ritman, the legendary coder behind *Head Over Heels* and the superlative *Monster Max* on Game Boy. "They had taken out a few useful features such as the 16-bit instructions and they had also removed most of the registers. The memory was paged in and out to give you access to a lot of memory – far more than a Spectrum could address – but the paging could be hard to manage. However, it was great that it had far more memory than I was used to."

Explaining the inner workings of any games machine in layman's terms is tricky, but Rare's Machacek is happy to run through the basics. "It boasted very simple screen architecture with a single character-mapped screen that you could scroll," he says. "A small bank of characters for background, a similar-sized bank for sprites and a third similar-sized bank shared between background and sprites. We were

▪ *C&VG* produced a supplement called Go! that was devoted to handheld machines - the Game Boy being the main focus

always fighting with that one because it was a juggling act between optimising the background enough to free up space to include the sprites you needed. Just to get this juggling in perspective, if each unique character available in both of those banks for the backgrounds were only displayed once on screen, you'd only fill a quarter of the visible screen space. Just like the NES, you really had to use a lot of repeated characters to fill the background. If you were doing a long scrolling level with lots of unique scenery then massive amounts of downloading to the banks had to take place."

Many programmers found that working on the Game Boy was preferable to coding for other popular platforms, including its domestic brother, the NES. "I learned to program on a 6502 processor system, rapidly switching to Z80 ones before joining Rare in 1988," remembers Machacek. "Working initially on the NES brought me back to 6502, but the Game Boy allowed me to return to Z80, which I preferred. In some ways the Game Boy seemed a step up from other systems I had used – the Amstrad CPC 464 had no sprites and the ZX Spectrum, which I love to bits, had attribute problems. Aside from the lack of colour, it was a very similar format to the NES that we were already working with." In fact, the machine's four-shade greyscale screen was seen as a bonus by some programmers. "I had been making games for the Spectrum that were using the screen as just two colours, so monochrome didn't phase me at all," comments Ritman. "Four shades was heaven for me, it was two more than I had been using on the Spectrum." Over time, various tricks were developed in order to work around the display's shortcomings. "We were very clear that sprites needed to stand out clearly from backgrounds, and the backgrounds would blur a bit when you scrolled quickly due to the lag on the display," says Machacek. "Efforts were made to give important sprites like the player character strong outlines to help delineate them from the rest, though."

On the audio side of things, the Game Boy offered an additional challenge for coders. "The sound chip was interesting," comments Cuthbert. "It had a 'user wave table' of something daft like 20 entries, each of which was 4-bit, so if you could refresh it quick enough it could play sampled sounds, albeit very lo-res. It also had a more regular FM-style chip and a noise generator." Getting the most out of this

INSTANT EXPERT

The Game Boy isn't actually the first machine to use interchangeable game cartridges. Milton Bradley's Microvision, released a decade before in 1979, has that honour.

The Game Boy version of *Tetris* has shifted an astonishing 33 million units worldwide – although this includes all copies bundled with the machine itself.

The link cable allows simultaneous multiplayer gaming, but it had other uses. For example, *Pokémon* used the cable to exchange data between game packs.

Over 460 million Game Boy games have been sold during its lifespan.

Although the Game Boy has a reputation for being a system aimed at younger gamers, Nintendo's early strategy was to target older users, and the first adverts reflected this stance.

Nintendo developed an accessory called the 'Work Boy', which featured a mini keyboard and a cartridge that held programs such as a calendar, measurement conversion tool and a phone book. It was never released.

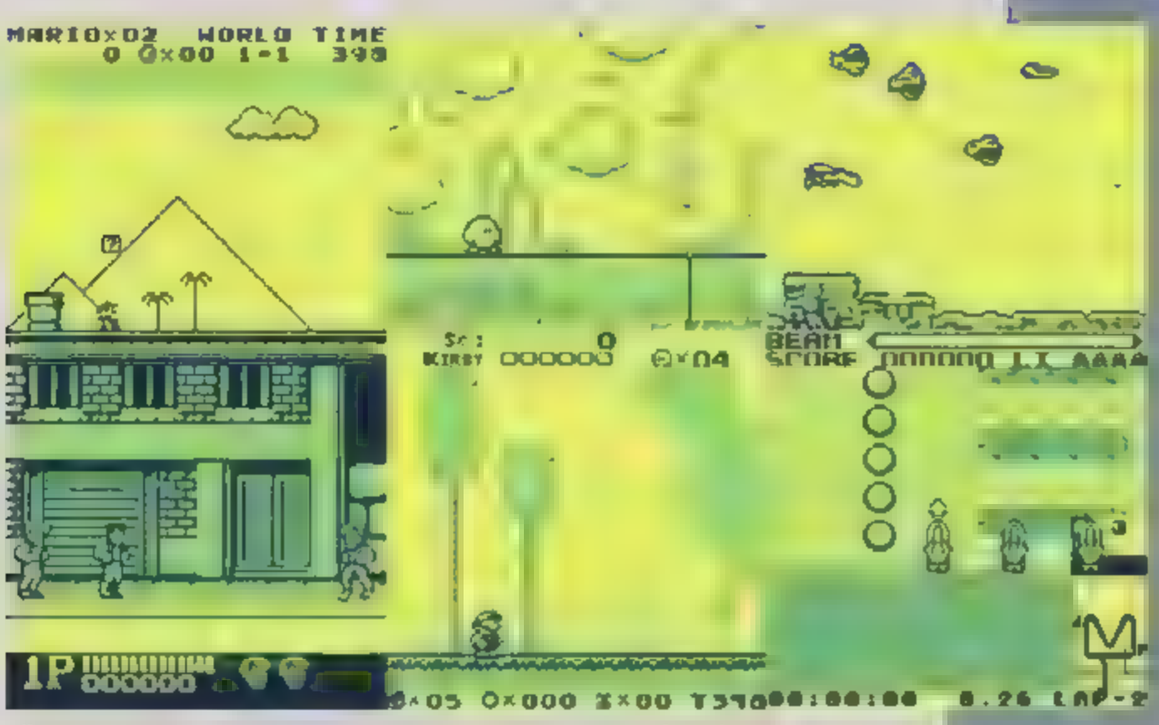
The four AA batteries required by the Game Boy provide roughly 35 hours of play time.

One of the most creative peripherals released for the system was the Game Boy Camera, which allowed users to take 128x112 pixel black-and-white shots, and then print them out using the Game Boy Printer.

Famous Game Boy owners include Robin Williams, Vanilla Ice, Will Smith, Bruce Willis and, er, Danny Baker.

A four-player adapter was also released which allowed games to support more than two players. Linking several of these up allowed 16-player skirmishes in *Faceball 2000*.

▪ The camera add-on enabled you to take grainy monochrome pictures.



» The sheer range of games, including great third party support, gave the Game Boy the edge over rivals

» With this add on yo could print o images from the camera and certain games

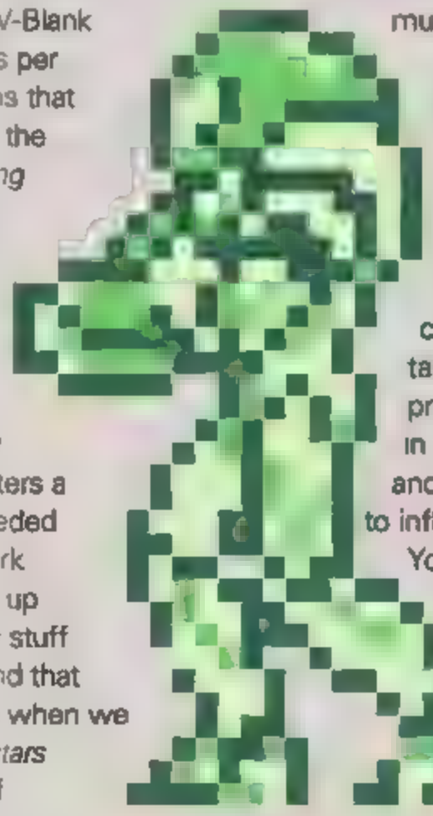
» The Game Boy's ad campaign pushed all the right buttons

humble setup was no easy task. "The engineers at Rare dabbled with the basic sound effects that our own wave-based audio system could supply," recalls Machacek. "Most of the engineers at Rare didn't understand it that well, I think Mark Betteridge was the only one of us who really knew how to get the sound he wanted. Later we did incorporate some sound sampling into some titles and were able to play back low-quality sampled audio for specific purposes."

When coding for the Game Boy, many developers found that its similarity with the NES was immensely beneficial. "It was obviously a little less powerful, but many tricks we used on the NES translated well," recalls Machacek. "Having pseudo scrolling screens by using a repeating character pattern in places and downloading a repeating 'texture' to them, which appeared to scroll was often seen. We always crammed in lots of carefully timed parallax-scrolling effects as well. Access to the video RAM was limited, and the space for characters and sprites was small so you constantly had to download artwork to the video RAM, but could only do a little bit per frame. Trying to super-optimise your download code so that it wasted no time and shifted as much data as possible really paid off. I think, between judicious use of H-Blank as well as V-Blank downloading I managed to shift about 24 characters per frame, which allowed us to do the sort of animations that appeared in *Donkey Kong Land* in 1995." Based on the groundbreaking CGI-rendered SNES hit *Donkey Kong Country*, this highly enjoyable platformer is arguably the title that pushed the original Game Boy to its absolute limits, and Machacek is proud of what he achieved. "I deliberately sat down and spent three weeks doing nothing but engine work to get it to a point where it could handle anything we threw at it," he remembers. "At that time many games were downloading about six to eight characters a frame to the video bank and *Donkey Kong Land* needed much more than that with all of the rendered artwork it had to drive. I do know that my lead artist got fed up with waiting for me to finish this work. It was techy stuff that was invisible to him, and you have to understand that three weeks to write an engine seemed like an age when we had put out the Game Boy version of *WWF Superstars* in three months flat – including testing – a couple of years earlier. But the *Donkey Kong Land* engine was able to shift 24 characters a frame by the end, and suddenly we were able to drive a lot of rendered artwork. I don't think anyone complained after that especially when it sold 4 million units."

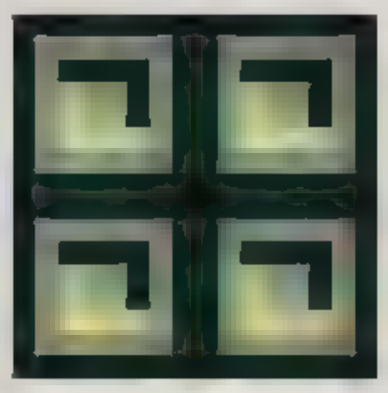
"That perfect marriage of Tetris and the Game Boy found a new audience"

PAUL MACHACEK, PROGRAM MANAGER, RARE DESIGN



They played an integral part in the success of this near-legendary console by coding some of its most memorable titles, it seems almost churlish to ask what made the Game Boy so popular, but we'll do it anyway. "In the Eighties there were plenty of dedicated handheld, battery-powered gaming machines," says Machacek. "You'd buy a *Space Invaders* handheld, or a *Pac-Man* one, or whatever. Here we had a single device that you could buy lots of games for and carry them all around simply. It was far superior to those other machines in every way and even came with multiplayer capability if you had a cable. Traditional gamers were now on the move. But at the same time, that perfect marriage of *Tetris* and the Game Boy found a new audience that wasn't necessarily into videogames, and probably didn't even realise that you could buy more games, but simply bought the 'toy that plays that funny little blocks game' that their friends had. Unlike home computers and consoles, the Game Boy could be taken to schools or offices. Combined with the low price, this was enough for non-gamers to get sucked in too." The legacy of the Game Boy is considerable and some insist that Yokoi's design ideals continue to influence Nintendo's thinking even today. "Arguably Yokoi's philosophy has continued with the Wii," states Sutherland. "The lower spec and price point meant it has a larger initial potential audience, but remember the games are always what actually drive the sales – that's why people buy it, not because of the hardware. *Tetris* was to Game Boy what *Wii Sports* is to Wii."

» "There's nowhere you can't play it" – this print advert once again confirmed that the Game Boy was targeting 'cool' gamers rather than kiddies.



GAME BOY

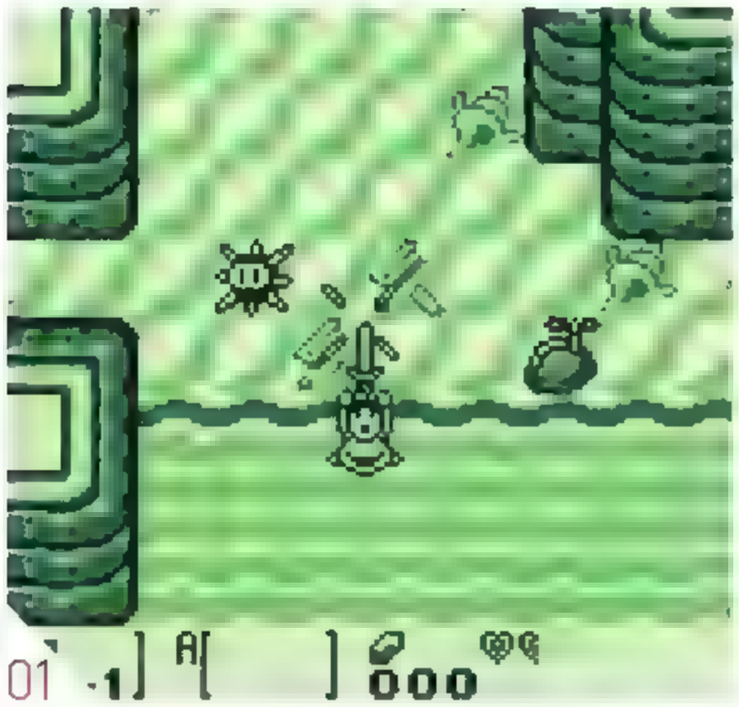
PERFECT TEN GAMES

There's a worrying number of licensed platformers on Nintendo's handheld, but also a lot of genuine gems. If you're thinking of buying a machine or adding to an existing collection, make sure you own the following

THE LEGEND OF ZELDA: LINK'S AWAKENING

- **RELEASED:** 1993
- **PUBLISHER:** NINTENDO
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** F-ZERO

01 **Although it features** an ending that's the Linkian equivalent of finding Bobby Ewing in the shower, this charming adventure remains one of the Game Boy's best titles. Set on the island of Koholint, *Link's Awakening* has the intrepid adventurer trying to awaken the mystical Wind Fish. His trials take him through some fantastically designed dungeons, see him battling some impressive bosses and generally meandering around a beautifully detailed world. The lack of certain *Zelda* elements – it's not set in Hyrule and Ganon is nowhere to be seen – may upset some, but you'll be doing yourself a grave disservice if you turn your nose up at Link's first portable adventure. A true classic.



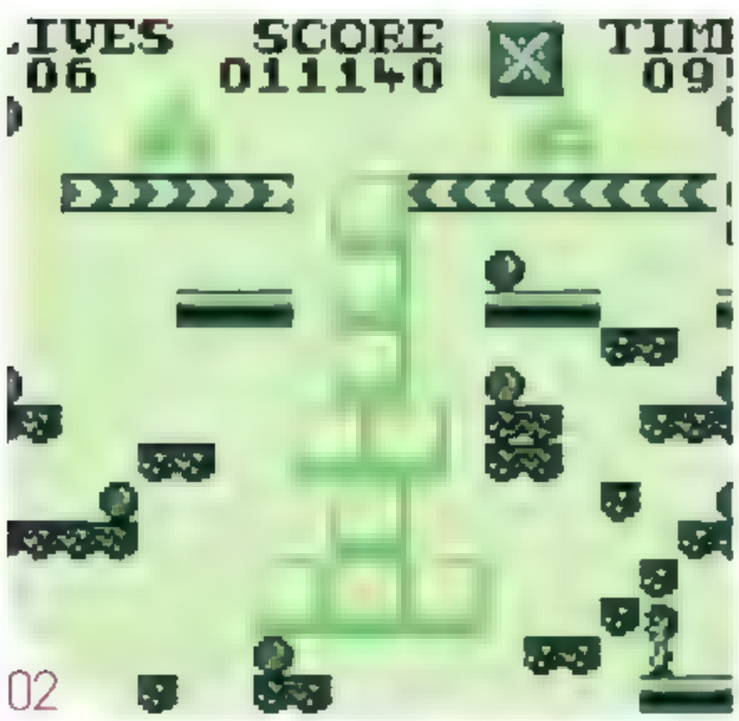
BILL & TED'S EXCELLENT GAME BOY ADVENTURE

- **RELEASED:** 1991
- **PUBLISHER:** LJN
- **CREATED BY:** BEAM SOFTWARE
- **BY THE SAME DEVELOPER:** TRANSFORMERS: ARMADA

02 **Licensed platformers are** often nothing more than a cheap cash-in at the expense of whichever movie they're based upon. Nobody passed this information on to Beam Software though, for which we're eternally grateful. Playing like a Nineties update of *Chuckie Egg*, *BATEGBA* is quite frankly fantastic fun and should be sought out by anyone with a love of platformers. Yes it looks incredibly basic, but the cunning level design, incredibly tight controls and overall slickness more than make up for its graphical shortcomings. Perfect proof that you don't have to be Nintendo or rely on well-known videogame stars in order to make a genuinely excellent (sorry) portable platformer.

R-TYPE

- **RELEASED:** 1991
- **PUBLISHER:** REM
- **CREATED BY:** B.I.S STUDIOS
- **BY THE SAME DEVELOPER:** LAST ACTION HERO



03 **Although superseded** by the incredibly polished *R-Type DX*, this remains the best blaster on the Game Boy. An astonishingly polished port, *R-Type* looks and sounds amazing due to its accurately drawn sprites – right down to a near-perfect miniaturised version of Dobkeratops – and impressively authentic music, and plays like a proverbial dream. Sure, it's just as annoyingly tough as its arcade parent, but the stunning level design, exceptionally constructed bosses and addictive gameplay will keep bringing you back for more. It's one of the best arcade ports the Game Boy ever had and is essential for shoot-'em-up fans everywhere.

SUPER MARIO LAND

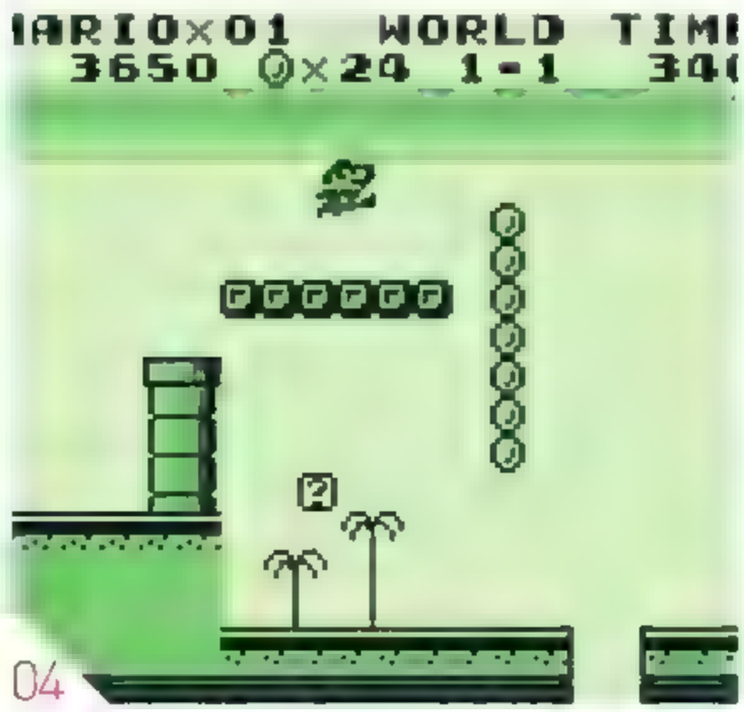
- **RELEASED:** 1989
- **PUBLISHER:** NINTENDO
- **CREATED BY:** N-HOUSE
- **BY THE SAME DEVELOPER:** DONKEY KONG

04 **Its successors certainly** boasted far more spit and polish, but in terms of fantastic gameplay, hardly anything else on the Game Boy comes close to Mario's first handheld outing. Bowser has been replaced by the sinister-sounding Tatanga while Luigi and Princess Peach are nowhere to be seen, but don't let that put you off as *Super Mario Land* is as good as anything that appeared on Nintendo's home systems thanks to its cleverly designed levels, perfect controls and polished gameplay. Mario even finds time to jump into a sub and plane for some fun shmup action. A superb platformer that sold 18 million copies.

POKÉMON RED/BLUE

- **RELEASED:** 1996
- **PUBLISHER:** NINTENDO
- **CREATED BY:** GAME FREAK
- **BY THE SAME DEVELOPER:** MARIO & WARIO

05 **By the time** UK gamers were able to sample the delights of Game Freak's ridiculously absorbing RPG, both *Pokémon Red* and *Blue* had already been available in Japan for three years. The lengthy wait was well worth it, however, and while the series has since gone on to become a global merchandising phenomenon, it's important to remember that Game Freak's first two games were as captivating as they were original. Full of charm and recapturing the trading card craze that used to sweep schools, it took a serious amount of patience and strategy (not to mention a few friends) in order to capture all 151 of Game Freak's cute critters.

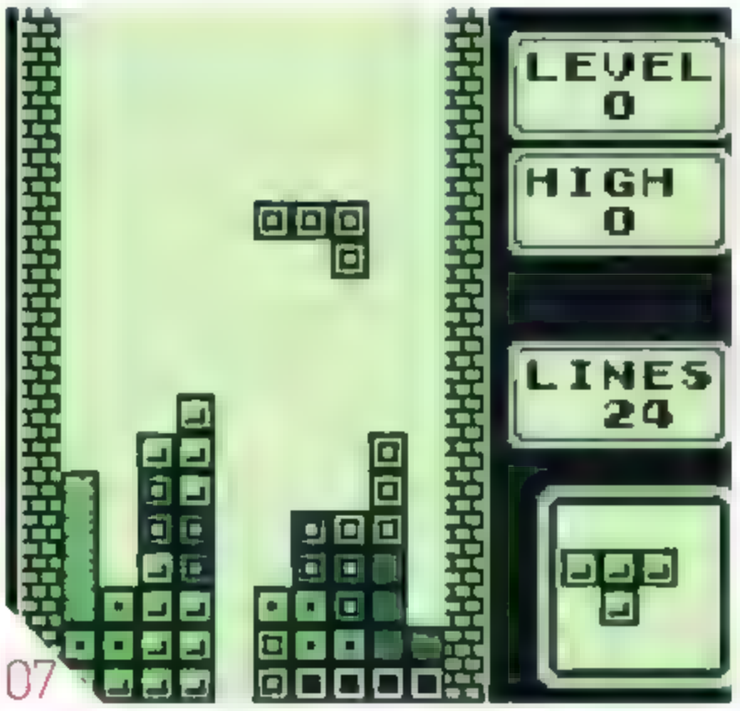


06

METROID II: THE RETURN OF SAMUS

- **RELEASED:** 1992
- **PUBLISHER:** NINTENDO
- **CREATED BY:** INTELLIGENT SYSTEMS
- **BY THE SAME DEVELOPER:** ADVANCE WARS

Samus's second outing is generally considered to be one of her worst, but we'd have to disagree. Sure the graphics take a hit on the Game Boy's tiny screen, and the environments are bland as hell, but it's the gameplay that matters and *The Return Of Samus* delivers in spades. Huge and sprawling, it rewards exploration and expands on the gameplay that made the original *Metroid* so enjoyable. Add in some impressive boss fights and a more refined Samus who's far easier to control than her NES counterpart and the result is a wonderful adventure that just keeps on giving.



07

TETRIS

- **RELEASED:** 1989
- **PUBLISHER:** NINTENDO
- **CREATED BY:** BULLETPROOF SOFTWARE
- **BY THE SAME DEVELOPER:** YOSHI'S COOKIE

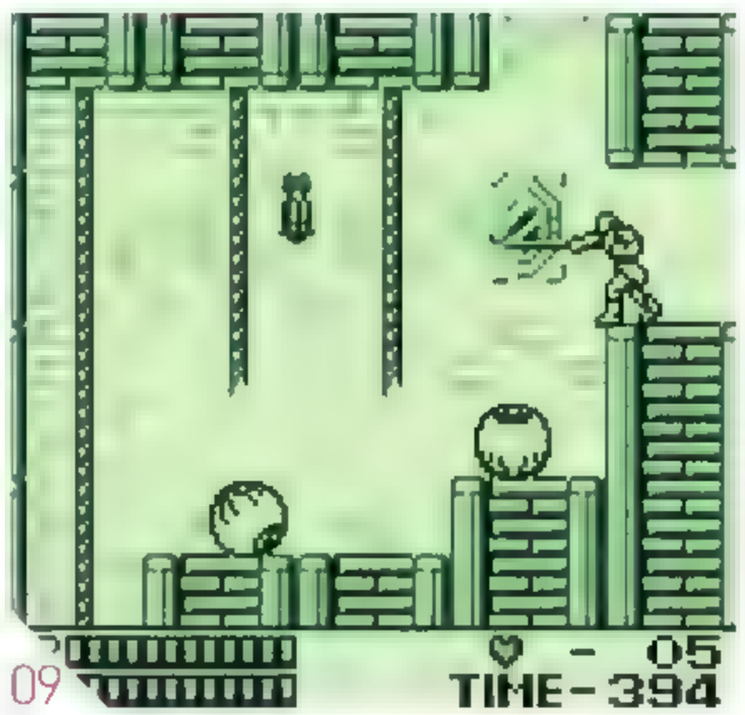
With Nintendo now being hailed as the saviour of gaming due to the Wii and DS ensnaring brand new gamers, it's easy to forget that it managed to do exactly the same thing with the Game Boy and *Tetris*. Everyone from your best mate to your granny was playing Alexei Pajitnov's classic puzzler back in 1989, no doubt helped by the fact that it was bundled with the Game Boy. Worryingly addictive and sporting that 'one more go' factor, it was a true killer app for the machine and proved that you didn't need flashy graphics or even colour to captivate the masses. Just a damned good game.

08

FACEBALL 2000

- **RELEASED:** 1991
- **PUBLISHER:** BULLETPROOF SOFTWARE
- **CREATED BY:** XANTH SOFTWARE F/X
- **BY THE SAME DEVELOPER:** GATO

What do you get when you cross forum emoticons with *Doom*? This gem of a first-person shooter still looks astonishing on the Game Boy's tiny screen, despite its slow pace. A port of the Atari ST's *Midi Maze*, *Faceball 2000* can support death matches for up to 16 players. The solo mode is effectively a take on *3D Monster Maze* where you have to guide your HAPPYFACE (Holographically Assisted Physical Pattern Yielded For Active Computensed Embarkation) through 70 increasingly complex mazes, but it's the multiplayer where *Faceball 2000* truly shines. Of course finding 15 other players may be a little tricky now.



09

CASTLEVANIA II: BELMONT'S REVENGE

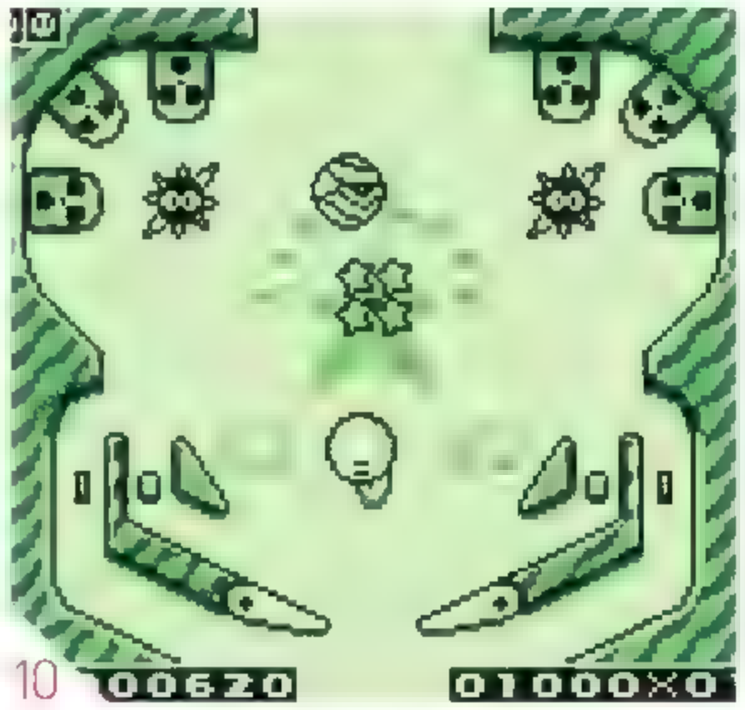
- **RELEASED:** 1991
- **PUBLISHER:** KONAMI
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** MYSTICAL NINJA

If the only Game Boy *Castlevania* you've ever played is the god-awful original, then don't be put off by this sequel. Realising what a hash it had made with the series first portable debut, Konami went back to the drawing board meaning that *Belmont's Revenge* is not only worthy of the franchise, but easily one of the best examples of the genre to be found on the Game Boy. Although there are only four levels, they're extremely large in size, brilliantly designed and feature a range of familiar enemies and bosses. Audio is also impressive, easily matching the excellent tunes that appeared in the NES games. In short, an essential addition to your Game Boy library.

KIRBY'S PINBALL LAND

- **RELEASED:** 1993
- **PUBLISHER:** NINTENDO
- **CREATED BY:** HAL LABORATORY
- **BY THE SAME DEVELOPER:** ADVENTURES OF LOLO

We came oh so close to nominating the excellent *Revenge Of The Gator* here – also by HAL Laboratory – but *Kirby* is just the better pinball game. Featuring superior physics, a total of three different tables to battle on – each with its own mini-game – and some extremely lush-looking visuals, *Kirby's Pinball Land* is a great little title that will bring out the score-attack fiend in everyone. The lack of a multiplayer mode is a little annoying, but this has been put together with so much care and attention that it's impossible not to love. Worryingly addictive and likely to give you extremely sore thumbs, it's another essential game that your Game Boy shouldn't be without.



10

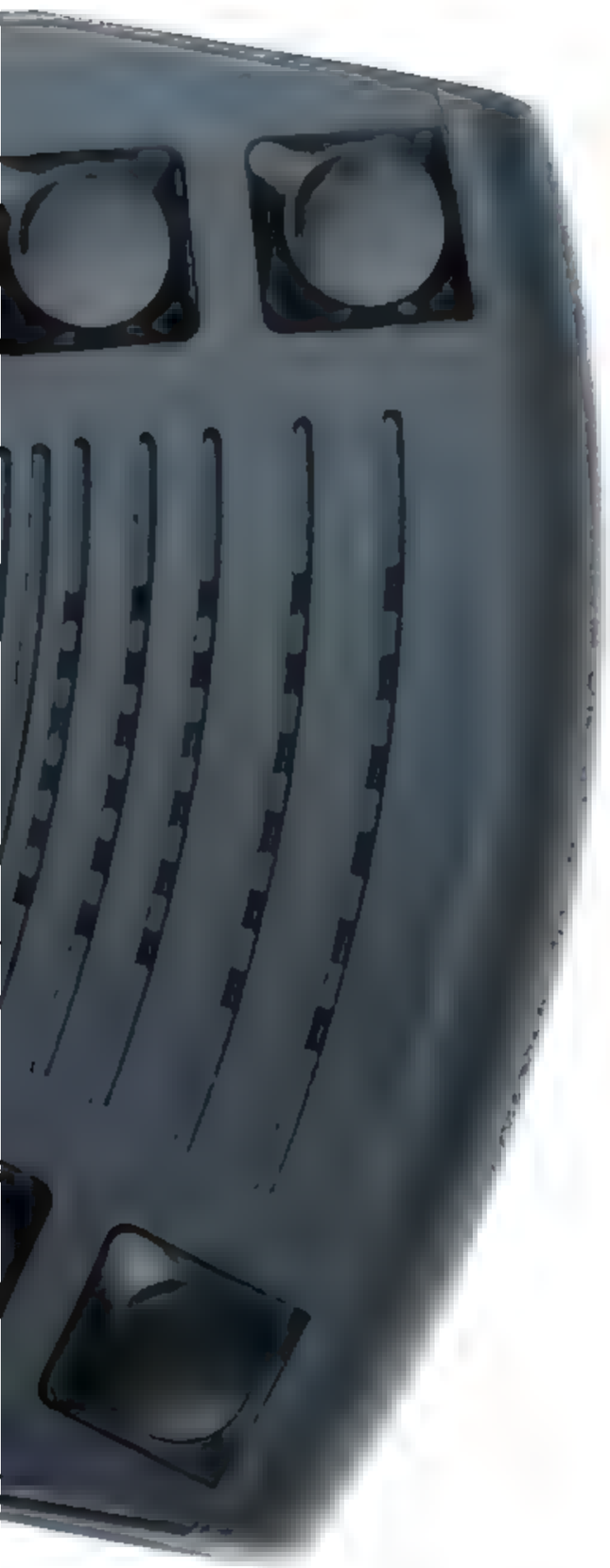
Year released: 1989 (US)/1990 (UK)

Original price: $189.95/£189.99

Buy it now for: £15+

Associated magazines: No dedicated commercial magazines, but there were many fanzines, most were based in the US including Portable Atari Gaming System and Wild Cat

Why the Lynx was great... With its great full-colour screen and addictive games, Lynx was ahead of its time. And although it had poor battery life, titles such as *Chip's Challenge*, *California Games* and *Klax* were worth charging them up for



ATARI LYNX

A FULL-COLOUR SCREEN, 16-BIT TECHNOLOGY AND ADDICTIVE GAMES. EPYX THOUGHT NINTENDO WOULD JUMP AT THE CHANCE OF SNAPPING UP 'THE HANDY', ITS FLEDGLING HANDHELD CONSOLE. BUT AS DAVID CROOKES REVEALS, EPYX WAS IN FOR A BIT OF A SHOCK...

Grab your suit and passport." Dave Needle looks up. It's three o'clock in the afternoon and standing in his office is David Morse, the CEO of Epyx, with an urgent look on his face. "I need you to join me on a flight to Japan. The plane leaves in three hours." Needle glances at his watch and then dashes home. Uncertain of exactly what is happening, he nevertheless grabs his best suit, takes his passport from his drawer and heads to San Francisco airport.

Morse and Epyx board member Joe Horowitz are waiting for him They board the plane, making their way to the upper deck of the half-empty jumbo jet heading for the Land of the Rising Sun. As the plane takes off, Morse begins to explain what's happening. A private meeting has been set up with Nintendo head Shigeru Miyamoto, with one simple goal selling the Handy. The handheld console that Needle and colleague RJ Mical have been working on needs to be sold. Epyx doesn't have the available finances to take the product to market, and it might just be possible that Nintendo can be persuaded to buy it and put it out as one of its own products

As they snack on shrimp, cheese and caviar, Needle begins to feel uneasy Something isn't quite right. 20 years on, he recalls exactly what he was thinking: "We didn't have a planned presentation", he says. "I felt it wasn't the sort of pitch that you made off the cuff. It would take a lot of work to present it properly It was Japan I had dealt with this sort of stuff before, and if we were going to be on their playing field we must play by their rules " Needle's instinct was right Horowitz was convinced that they would be able to force their way into Nintendo's pocket And while Morse remained sceptical, he was powerless to call a halt to the proceedings. The flight to Japan was to prove a lengthy one

The meeting had been set up by Henk Rogers, a Dutch-born videogame designer and entrepreneur known for successfully winning the handheld and console licences of *Tetris* from the former Soviet Ministry of Software and Hardware Rogers had snatched the rights from under the nose of *The Mirror* chief Robert Maxwell At this moment in time, however, he was helping Epyx make its pitch He

INSTANT EXPERT

The Lynx was the world's first colour handheld console and was initially sold with *California Games*

It came packaged with a case a ComLynx cable and AC adaptor (later replaced by six rapidly depleting AA batteries

The handheld was developed by Epyx, using the talents of Dave Needle and RJ Mical and attracted Atari's interest even though both had been members of the Amiga design team

Needle and Mical had based the Lynx developer's kit around an Amiga

With a 3.5-inch screen, the Lynx visually packed a punch The screen could even be flipped to allow for left or right-handed play

There was a two-inch speaker (the Lynx II had two speakers) and an eight-directional joypad

The console had two basic chips named Mikey and Suzy Aw Both were 16-bit custom CMOS chips running at 16MHz and were run via an 8 bit CPU

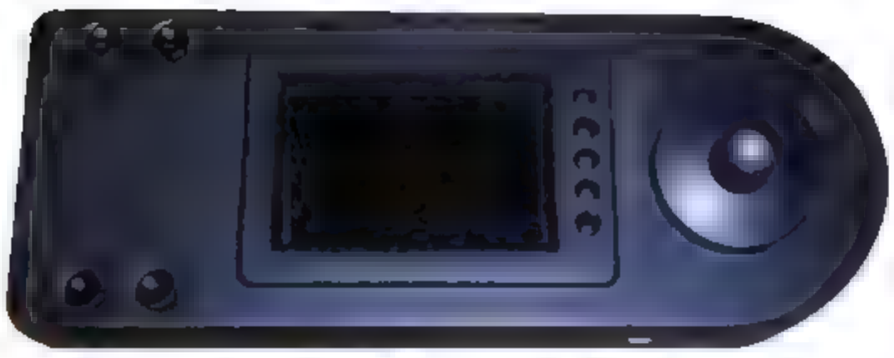
While Mikey ran the sound and video driver Suzy looked after the blitter sprite rendering and hardware scrolling

Game cartridges could hold up to 2MB of data that was loaded into the Lynx's 64K of memory Most of the cartridges, however were 128K

Up to 18 players could link up using the ComLynx cable as long as they had their own copy of the game Infrared was going to be used in the Lynx

RETROINSPECTION

ATARI LYNX



» A plastic mock-up of one of the alternative designs for the first Handy

» In an attempt to boost sales, Atari reduced the price of the Lynx to just a whisker below $100.

» One of the many independently produced games by Songbird Productions

» Cartridges came in several different forms: flat, ridged and curved lip (as above)

knew the president of Nintendo extremely well, and Epyx figured this would be a fundamental contact in the whole business.

What Epyx hadn't predicted, however, was the aggressive pitch put forward by Horowitz. "We were in the presence of Nintendo," Needle recalls. "Joe tried a hard sell, and as he spoke, David and I felt our faces turn red. It carried on for some time, and before long we were ordered out of the building. It was just too strong. Yet it didn't stop Joe – he got even louder. Luckily, Henk intervened and put an end to the pitch. Nintendo then allowed us to remain for a moment so the reps could show us something."

A pair of small boxes were brought into the room. They were placed upon a table and opened in front of us. Needle, Morse and Horowitz glanced across at each other nervously, uncertain of what was about to be revealed. Inside each box was a set of handheld videogame consoles. There was a communications cable that enabled them to be played together, and it was ready to go to market immediately. "We were the first non-Nintendo people to learn of the existence of the Nintendo Game Boy," Needle says, recoiling even at the memory. "We were crushed. Joe was infuriated. The Nintendo boss left the room and we just sat there, wondering what to do next."

> "IT WAS JAPAN. I'D DEALT WITH THIS SORT OF STUFF BEFORE, AND IF WE WERE GOING TO BE ON THEIR PLAYING FIELD WE MUST PLAY BY THEIR RULES"

The Handy was an ambitious project. A full-colour, 16-bit handheld games console that was so far ahead of its time, it took 12 years before anyone bettered it. It was devised by Morse, Needle and Mical, working with a large, talented team at Epyx and had been drawn up on napkins in August 1986 while the trio were enjoying a meal in a plush little cafe in the affluent Foster City, California. They were already heavily involved in the computer industry. Morse had been the mastermind of the Amiga home computer, and Mical and Needle were members of that team and had played a large part in its creation. It was time to start something new.

"We were really intrigued by the idea of creating a handheld console," says Needle. "We knew it was possible and so we cracked on with it straight away." As for the 'Handy' name: "I can't remember how we got the name," says Mical. "Everyone was popping up with clever stuff in those days. They were heady times filled with promise and productivity. Man, we jammed."

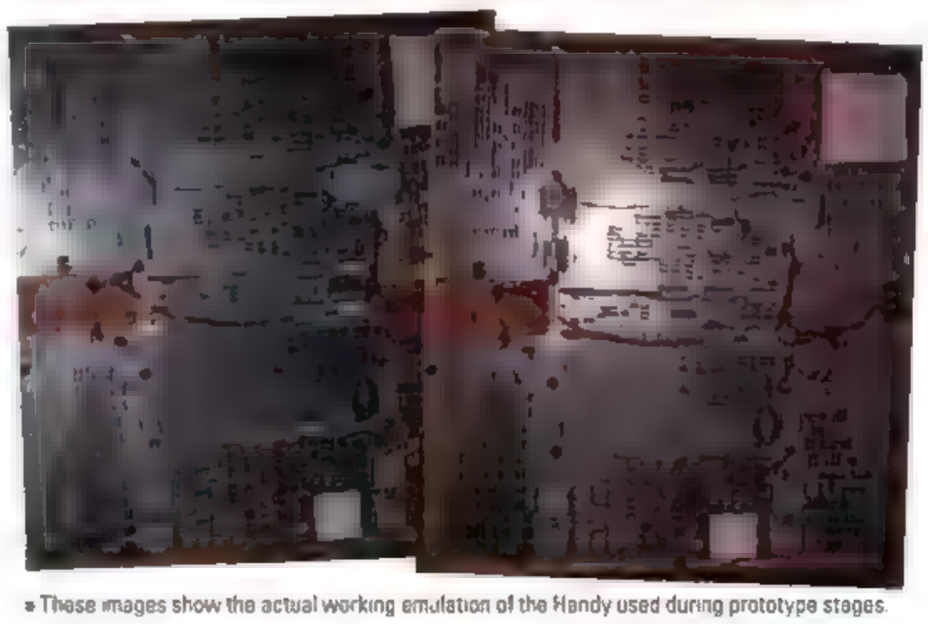
Before long, Epyx had assembled a team large enough to look after the software, hardware, industrial design and audio facilities of the console. Morse, who had been installed as Epyx's CEO after founder Jim Connelley decided to leave, put the entire process together and led the project from the start.

The first prototype of the Epyx's handheld had a black-and-white screen. "But it didn't have the 'zing' we thought it ought to have," says Needle. "Many people in the group wanted us to stick to black and white. They said the cost, battery life, weight and viewability effects of changing to colour would hurt the product." Yet Needle and Mical stuck to their guns and the project shifted to colour – 4,096 of them, the same number as the Amiga. "It was a continuation but we weren't creating a handheld Amiga," says Mical. "The leading-edge display was the most expensive component, so the colour choice was one of economy." Needle adds: "If the low-cost glass and drivers would have supported a million colours, I would have done it." It was decided that the 65C02 chip would be used since it outperformed the rest and the Handy also became the first gaming console with hardware support for zooming and distortion of sprites. It allowed for fast pseudo three-dimensional games and made life easy for programmers.

"Many engineers knew it and would happily program in assembly for it," Mical says. "There was a large existing body of code because the 65C02 was in popular systems such as the Apple II and the Commodore 64. Best of all, though, it was cheap and fast." Needle explains: "I invented the technique for planar expansion/shrinking capability for an arcade game I had done several years before. It was a space alien/earth attack game with a 3D rotating planet, 3D giant robots, ground-tracking shadows and was pretty cool. We also came up with a way of avoiding filled polygons by taking a triangle and sizing it as you wished. It's not as great as a real polygon, but this way the surfaces had full texture all the time with absolutely no performance penalty."

While work progressed on the hardware, Epyx continued to produce videogames such as *Chip's Challenge* and a Handy department was created. At one point it was sealed off from the rest of the building for security purposes. It was decided that cartridges would be used for the games. Although there had been reports that games were going to be loaded from tape, Mical says there was no truth in them.

Yet by the time the machine was ready, Epyx had hit financial problems. The Commodore 64 market, which was Epyx's core



» These images show the actual working emulation of the Handy used during prototype stages.

OTHER VERSIONS...

Lynx II

One of the hallmarks of the Atari Lynx (other than poor battery power and the ability to flip the screen upside down so that left-handers could play) was its size. It was enormous. So when Atari decided that competition from the more compact Game Boy meant that the Lynx needed a revamp, one of the first things it did was cut it down to size. But that's not all. As well as making the rubber hand-gripped Lynx II smaller, the battery power was enhanced, it added stereo sound and it had a power-saving pause option that turned off the improved screen. It was also cheaper, retailing at £99, although it didn't come with any accessories or a game. "By removing the games cartridge, we have brought the price down below the psychological £100 price point," Atari spokesman Peter Walker said at the time.

A Lynx To The TV

When the Atari Lynx was being created, the team pondered whether or not it should be possible to hook it up to a television. The idea was cast aside, however, because it was thought it would prove too limiting to the architecture if the handheld needed to produce a TV compatible image. "Things like frame rate, aspect ratio, line count, colour saturation limits and so on were just too limiting," explained Dave Needle. "So we declared that no work would be done for any TV capability at all. The downside was that it was hard to do screenshots for the press. The upside had a surprise, in that Sharp, our first selection for the LCD manufacturer, had refused to help us because it feared that the final product could be used as a TV and thus hurt its LCD TV sales. The architectural impossibility of a TV version gave us the needed inroads. In the end, we used the Citizen LCD, although it had similar concerns." One idea to allow the Lynx to be used with a television was also rejected, mainly due to the fact that the Lynx screen was not up to broadcast standard.

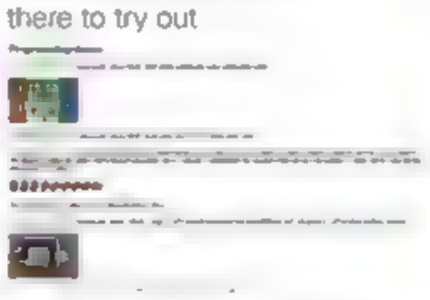
COMMUNITY – ATARI WEBSITES TO WATCH

The Atari Times
www.ataritimes.com
Since 1996, this site has been an essential Atari resource and is packed with Lynx features, including reviews of both commercial and homebrew games. With reviews updated as and when new games arrive, the site is a brilliant place to start when reading up on the latest for the handheld.

Atari Age
www.atariage.com
If you are trying to track down and play some games for your Lynx, Atari Age has not only a great many intricate details – from the three different cartridge styles and company profiles to tips and cheats – it also has an excellent rarity guide, listing every Lynx game created. Not to mention its bustling forum.

Songbird Productions
http://songbird-productions.com
When the Atari Lynx died a commercial death, its fan base took over in much the same way as with the majority of retro machines. Songbird Productions was set up in 1999 to produce games such as *Loopz* and *Total Carnage* for the Lynx and Jaguar. You can also browse its catalogue via the website.

Matthias Domin's Atari Lynx Page
www.mdgames.de/lynx_eng.htm
If you're pretty nifty in the coding department, then Matthias Domin has put together a fine selection of tools that will be of great assistance when taking the initial steps and using your talents to create new Lynx content. There are also some little games on there to try out.



audience, wasn't pulling in the cash any more. It had also invested in VCR games but with little success. Staff levels were falling from around 200 at its peak to just 20 employees. If the Handy was ever going to be released it would need the backing of another company. Hence, the ill-fated journey that led the group to knock at the hallowed doors of Nintendo.

When that fell through, Horowitz decided to approach Atari, and made a phone call to Jack Tramiel, the chief executive at that time. Atari had already tried its hand at producing a portable machine – the Atari 2200, which was based on the Atari 2600 – but it just couldn't seem to get it right. As time went on, however, Atari began to ignore the growing stature of consoles and had become heavily involved in a business war against Commodore. Tramiel finally realised the worth of consoles when the NES stormed onto the market – so he was rather taken by the Handy, believing it to be a great way back to console dominance.

Soon after Horowitz approached Atari, Jack's son Sam went to Epyx. He was greeted by Joe and shown around. They then sat in an office and discussed some terms. It was eventually decided that Atari would manufacture and market the handheld console and Epyx would create the videogames, getting paid by Atari for each title produced. However, in the contract was a clause that issued Epyx a deadline. For example, the company had 60 days to fix any bugs that Atari said needed to be rectified. Needle says: "Atari routinely waited until the end of the Epyx time period to comment on the Epyx fixes. There was then inadequate time for Epyx to make the fixes." According to Needle, Atari decided to "punish" Epyx by withholding payment. In the end, this sent Epyx into financial turmoil, leading to its inevitable bankruptcy. Atari did hold out a lifeline – paying Epyx but only on the condition that it handed over the Handy.

The deal obviously upset Mical and Needle. They asked their lawyers if they could leave Epyx, but they were advised that it would be seen as an overt action by them to damage Atari and that they would almost certainly be sued. The pair remained at Epyx until the hardware handover was complete, turning down an offer from Sam to work at Atari.

With Morse, Mical and Needle's involvement in the project coming to an abrupt halt, Atari took the Handy and renamed it the 'Lynx'. It was two years before the company released the console in September 1989, however, and by that time Nintendo's Game Boy had also been released. "Looking back, if we had decided not to go colour," says Needle, "We would have been a zero. The Game Boy really would have trounced us." As it was, the colour feature of the Lynx kept the machine in the limelight, although it wasn't plain sailing. The Lynx cost $189.95 and the Game Boy retailed for $89.95. Many felt the Lynx was too expensive at the time and there was a vicious circle of too few purchases, putting off third-party developers, which in turn led to fewer and fewer purchases.

As sales continued to fall, Atari tweaked the machine and created the Lynx II. It retailed for half the price of the original and was smaller and cheaper to make. It also had the addition of stereo sound as well as better battery life and a pause option that allowed the screen to be turned off, thus saving power.

Needle wasn't too convinced with the changes, however. "During the handover, [Atari's] mechanical engineer made some seemingly pointless changes," he said. "The guy told me that he always liked to put a piece of himself in any product he worked on. He changed the backlight electronics and the transformer design and reduced the battery life. But he also changed the high voltage capacitor to one with considerably more leakage at the oscillation frequency and it generated considerable heat. The new load on the batteries caused them to overheat." Nevertheless, sales picked up and it seemed Atari was onto a winner.

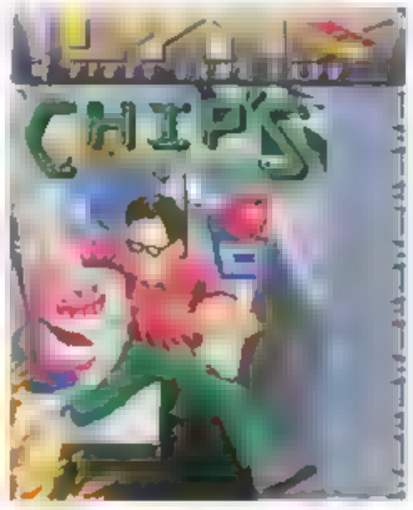
Then along came Sega, who introduced us to the Game Gear in 1991. For Lynx, this meant the end was nigh. Although the Lynx remained the superior machine, the Game Gear benefited from Sega's advertising drive and the Japanese company's resources. What was more frustrating was Game Gear's similarities to Lynx.

"Game Gear was an interesting issue," Needle remembers. "Sega was shown all of the Handy's innards and schematics and specs as part of an attempt to partner with them after the Epyx marketing fiasco. And to see what I consider to be pretty much a copy of the Handy was a bit infuriating." He continues, "I had become friends with one of the engineers at Sega, and during the last development stages of the Game Gear, after I had already left Epyx, Sega hired me to help with a few lingering product issues. I went to their Japan facility and they showed me the problems they were having. Some issues were just weak engineering on their part, showing me that they did not understand the functionality of the hardware they were copying. They had the output palette wrong, among other things."

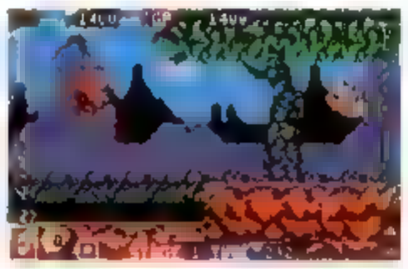
Despite the problems, Dave Needle remains proud of the Lynx, "always have, always will", he says. Among his favourite games for the once groundbreaking handheld are *Chip's Challenge*, *Gates Of Zendocon* and *California Games*. "It's a matter of pride that no one created anything better for 12 years," he adds. When it comes to what went wrong, Mical maintains that "All the Lynx needed was low cost and a huge library of software. But I place the blame for both of these in Atari's lap."

» *Checkered Flag* was a top racer for the Lynx and highly sought after.

» Atari's Lynx catalogue showed off the large number of games.



» Wonderful puzzler *Chip's Challenge* was one of the Lynx's most endearing titles.



» Colourful games such as *Toki* made full use of the Lynx's colour capabilities.

Anti Red-Eye
Although RJ Mical was happy with the Lynx, saying "We got exactly what we set out to create", one feature he would have liked was infrared. Named RedEye, the infrared capability was demonstrated in the lab but it was decided to go for the ComLynx instead. "RedEye would have been cool," says Mica. "You would need to maintain line of sight between players, though, and that could have been a problem. We dreaded the feared 'crossing legs' boy who would cross his legs and block his unit from the network."

ATARI LYNX

PERFECT TEN GAMES

01

CHIP'S CHALLENGE

RELEASED: 1989

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: SUMMER GAMES

01 Puzzle games are almost ten a penny on the Atari Lynx, but when the standard is as high as it is on *Chip's Challenge* you don't tend to mind them cluttering up the console. While the concept itself is not particularly original – you basically have to move Chip around each maze in search of a set number of computer chips – it has been put together with so much love, care and attention that you can't help but become smitten with it. Chip himself may be only a couple of pixels high, but he's bursting with character and you just can't help feeling for him as he carries out his tricky quest. It may have been ported over to a number of different machines since its release, but the bite-sized puzzles make this perfect fodder for Atari's handheld.

KLAX

RELEASED: 1990

DEVELOPED BY: ATARI

BY THE SAME DEVELOPER: GAUNTLET

02 *Klax* is easily deserving of a place in our top ten and it's not just because it features the sexiest videogame voice of all time. Converted from the popular Tengen coin-op, *Klax* is an almost perfect arcade adaptation that not only captures the authenticity of the original arcade game but also proves that the Lynx was no slouch when it came to hosting brilliant puzzlers. *Klax* is deceptively simple to pick up and play – all you have to do is stack three tiles of the same colour on top of each other, either horizontally, vertically or diagonally – and it was perfect proof that you didn't need to own a handheld with a monochrome screen in order to appreciate one of the world's greatest puzzle games. And yes, that does mean we like this just as much

02

RAMPART

RELEASED: 1991

DEVELOPED BY: ATARI

BY THE SAME PUBLISHER: BATTLEZONE

03 It might not match the majesty of its arcade parent but there's still plenty to love about this extremely slick Lynx conversion. While it suffers from the obvious lack of a trackball, it still plays surprisingly well and doesn't let you down on later levels once the action speeds up. The mix of *Tetris*-styled wall building and strategic blasting works perfectly and makes for a very unique experience. It's a lot tougher than the arcade original (mainly because all of the enemy ships can now drop off ground forces) and the loss of the third player is a bit of a shame (the Lynx should easily be able to handle it), but this is an otherwise cracking conversion and a healthy addition to the Lynx's library.

LEMMINGS

RELEASED: 1993

DEVELOPED BY: ATARI

BY THE SAME PUBLISHER: PAPERBOY

04 *Lemmings* has appeared on virtually every console and computer that has ever been made, so it should come as no surprise that the loveable mop-tops also found a home on the Atari Lynx. What is surprising, though, is just how good an adaptation of *Lemmings* this actually is. Despite the small screen and lack of a mouse there are no problems with this spot-on conversion. Your little fellas are perfectly animated and full of character, the levels are easy to navigate and it's incredibly easy to select each class. In fact, the only thing that is likely to put fans off is that you're going to be extremely unlikely to find a copy of the game for under £60.

S.T.U.N. RUNNER

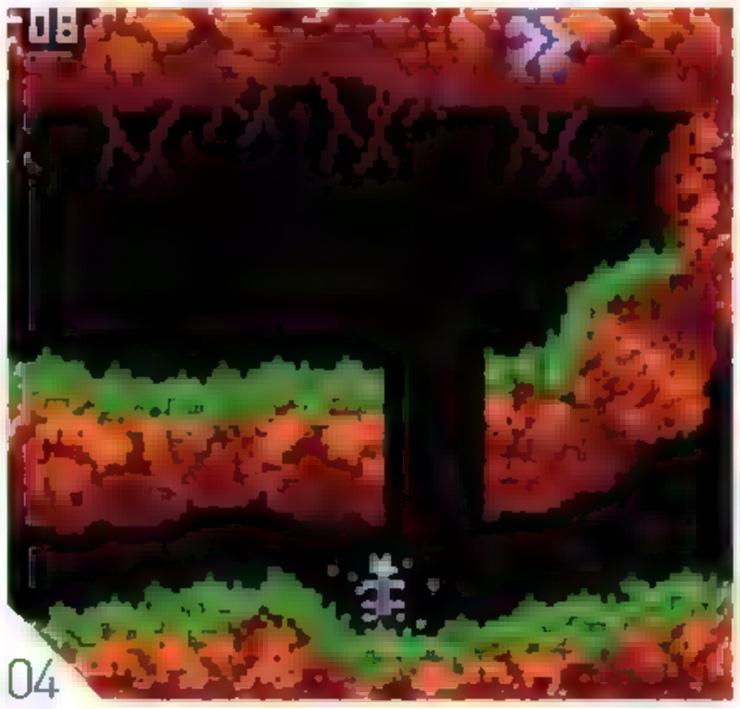
RELEASED: 1991

DEVELOPED BY: ATARI

BY THE SAME DEVELOPER: CHAMPIONSHIP SPRINT

05 If anyone doubts the power of Atari's Lynx, simply shove a copy of *S.T.U.N. Runner* under their noses and watch them go into serious denial (we've tried it and it's fun). While it obviously can't hope to match the insane slickness and plentiful polygons of the arcade original (we still have dreams about that sleek, sexy cab), this Lynx conversion is amazingly polished and perfectly captures the atmosphere of its larger peer. Granted it's far more unforgiving than its bigger brother – you'll find the controls a little sensitive to begin with – and the gameplay is rather simplistic, but if you're looking for a thrilling racer on Atari's handheld you won't find anything better.

03


04

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08

BLUE LIGHTNING

RELEASED: 1989

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: IMPOSSIBLE MISSION

06 *Blue Lightning* may well have been one of the earliest titles to show off the Lynx's graphical grunt, but that's not to say it wasn't a superb game in its own right. Essentially Atari's answer to *After Burner* and *Star Fox*, *Blue Lightning* put you at the stick of an advanced military jet and required you to shoot down wave upon wave upon wave of enemy fighters. Sure it gets repetitive, but the action is always fast and frantic, the nine levels have a variety of nice environments to fly through and the scaling effects are truly fantastic. If you're looking for a good blaster then set your sights on *Blue Lightning*. It's far better than our rather naff pun.

XENOPHOBE

RELEASED: 1992

DEVELOPED BY: ATARI

BY THE SAME PUBLISHER: BILL AND TED'S EXCELLENT ADVENTURE

07 While the Lynx had many fine conversions, it was only really *Xenophobe* that managed to notably improve on its arcade original. For starters, the controls were streamlined and far easier to use (the arcade's three-button joystick was quite cumbersome), new items like the jetpack enabled you to fly around the space station without taking damage, while several new multi player modes kept the gameplay fresh and exciting. Add in some cartoony visuals that perfectly mimicked their arcade parents' and the end result is a highly enjoyable multiplayer experience that proves hunting down aliens can actually be a lot of fun.

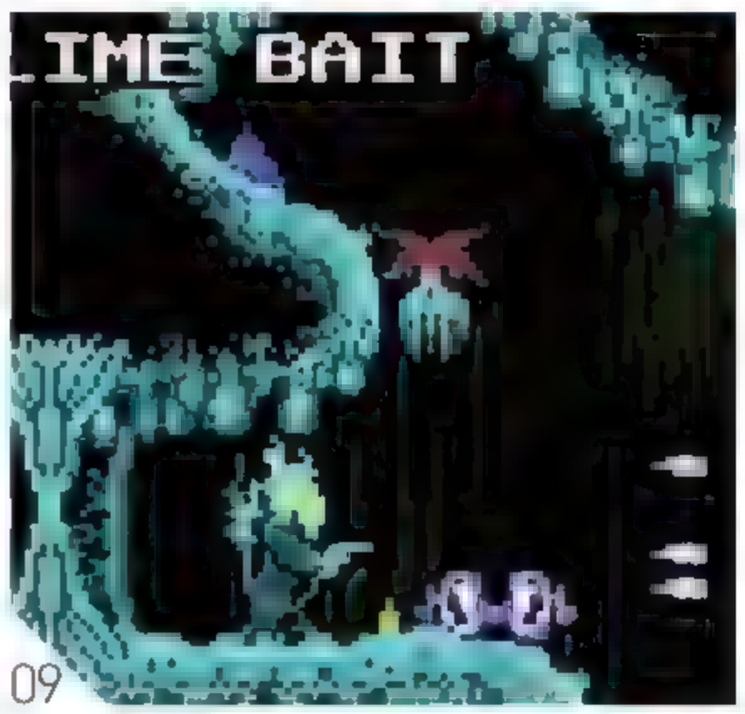
ALPINE GAMES

RELEASED: [illegible]

DEVELOPED BY: [illegible]

BY THE SAME PUBLISHER: NATIVE [illegible]

08 Now we don't wish to upset anyone by featuring a homebrew title in this Perfect Ten but *Alpine Games* is so brilliant that it would have been criminal not to include it. Essentially a homage to Epyx's sports games of old (why only *California Games* was released on the Lynx is beyond us), *Alpine Games* ups the ante considerably by featuring nine different events, nifty digitised music and some astounding looking visuals that push the Lynx further than we've ever seen. The bobsleigh in particular looks absolutely amazing, but it's the finely balanced gameplay that really manages to impress. It may cost over £20, but no Lynx owner should be without this fantastic title.



09

TODD'S ADVENTURES IN SLIME WORLD

RELEASED: 19[illegible]

DEVELOPED BY: EPYX

BY THE SAME PUBLISHER: WINTER GAMES

09 We were going to go with *Bill And Ted*, but we decided that *Todd's Adventures* is slightly better (it was a really close call, though). Anyway, *Slime World* sees you thrown into a series of caverns in search of precious Slime Gems. Sadly for Todd, *Slime World* is covered in gross icky enemies so you'll need to constantly keep his water gun filled up so you can clean up the pulsating planet. Like many Lynx titles, *Slime World* is very pretty and the slime-coated caverns that Todd explores are constantly in motion. *Slime World* itself is absolutely huge and it will take an age to fully explore this *Metroid*-styled adventure.

ZARLOR MERCENARY

RELEASED: 1990

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: CALIFORNIA [illegible]

10 With *Robotron: 2084* just missing out due to its overly complex control system, *Zarlor Mercenary* quickly swoops in and deservedly steals the last position in our prestigious top ten. Set across six huge and incredibly varied levels, *Zarlor Mercenary* doesn't do anything astoundingly new, but what it does do is exceptionally well polished. Destroyed enemies release coins that can then be spent on power-ups, there are some genuinely tough bosses to topple and the pseudo-3D visuals used throughout the game are very effective. There's even a superb multi player option that enables you to team up with three other pilots to take on the enemy forces together. Truly cracking stuff.

Special thanks to **atariage.com** for providing screen[illegible]

10

Year released: 1990 (Japan) 1991 (US and Europe), 1992 (Australia)

Original price: $149.99, £99.99 (£129.99 bundles)

Buy it now for: £20+

Associated magazines: Mean Machines Sega, Sega Pro, Sega Power, Sega Force, Sega Zone, CVG Go! Handheld

Why the Game Gear was great... With full-screen colour, a host of arcade Sega classics and an expansive Master System back catalogue to take advantage of, the Game Gear provided hours of entertainment: great design and a dazzling range of first-class software

GAME GEAR

IT WAS BIG, CLUNKY AND GUZZLED BATTERIES BY THE DOZEN, AND YET THE GAME GEAR WAS LOVED BY SEGA FANS FOR ITS VARIETY OF SOFTWARE. KIM WILD LOOKS AT THE HANDHELD THAT TOOK ON THE GAME BOY BUT ULTIMATELY FAILED TO SUCCEED

The Nineties followed what had been an interesting decade for Sega. The company had a profitable arcade division which released the likes of *OutRun*, *Shinobi* and *After Burner*, as well as the Mark III console to compete with the Famicom.

When the Famicom launched in America in 1986 as the rebranded NES, Sega followed with its own machine, the Master System (a redesigned Mark III console), which failed to surpass Nintendo's dominance despite a substantial following in Europe.

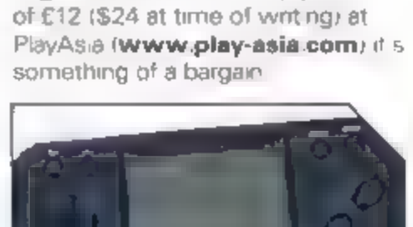
In 1989, Nintendo released its handheld, the Game Boy, and not to be outdone, Sega began work on its own machine, which was to be "everything the Game Boy wasn't." Sega had a penchant for naming all its consoles after planets during the development process – later machines like the Genesis were called 'Project Venus', the 32X 'Project Mars', and the Saturn 'Project Saturn', the only console to retain its original codename – and so development began on 'Project Mercury', later renamed as the 'Game Gear.' In order to cut down on the development time and get the console out into stores quickly, it was decided that the handheld would use technology from the Master System, with the major difference being the colour palette the Game Gear had 4,096 colours as opposed to the Master System's paltry 64 colours.

The handheld launched in Japan on 6 October 1990 with a successful debut, shifting 40,000 units in its first two days. Within a month, 90,000 consoles had sold and back orders exceeded 600,000. In 1991, Sega launched the Kid's Gear in Japan, a repackaged version of the handheld aimed at the younger end of the market, focusing on children's titles although it was still compatible with Game Gear software. This handheld, like many special-edition models, remained firmly in Japan. Regarding the American launch, Robert Botch, Sega's marketing director for the Game Gear, remarked: "There is clearly a need for a quality portable system that provides features other systems have failed to deliver. This means easy-to-view, full-colour graphics and exciting, quality games that appeal to all ages." His words seemed to ring true when the Game Gear arrived in America in 1991 priced at $149.99 with sales reaching 500,000 for the launch year and 900,000 by 1992.

Europeans and Australians would once again come last in the list of priorities as the Game Gear was originally scheduled for release in spring 1991 but wouldn't actually reach these shores until 1992. The delay resulted in keen importers forking out £200 just to get their hands on the latest technology. At the time of the Game Gear's announcement in 1991, distributor Virgin Mastertronic revealed that the handheld would retail at around £100, more expensive than the Game Boy (£69.99), but more affordable than the Atari Lynx (£179.99). However, in response to the competition, Atari dropped the price of the Lynx to £129.99 before the Game Gear's launch so that when Sega's machine finally arrived priced at £99.99, it only had a slight price advantage over its colour riva

A New PlayPal

The last few years have seen the re-emergence of the Game Gear, this time in the form of a portable alongside Master System titles. The PlayPal portable (known elsewhere as Coleco) contains 20 built-in Sega titles, can hook up to a television and doesn't drain batteries like the Game Gear does. Although the choice of games could be better (*The Ninja*, *Aztec Adventure*, anyone?), there's plenty in here for retro fans, such as *Alex Kidd In Miracle World* (and *Hi-Tech World*), *Super Columns*, *Ecco: The Tides Of Time* and *Fantasy Zone*. The inclusion of rarer titles like *Sonic Triple Trouble*, *Sonic Drift 2* and *Snail Maze* (a game preloaded on early Master System consoles only) makes it a viable purchase for those who don't own the original. Sold at the cheap price of £12 ($24 at time of writing) at PlayAsia (**www.play-asia.com**), it's something of a bargain.



RETROINSPECTION

GAME GEAR

» The Master System convertor allowed many extra titles to be played on the Game Gear

» One of the many limited-edition models that hit Japan with a bundled game

» A unique protection accessory, making the Game Gear even bigger

» PAL boxes are noticeably bigger than the Japanese editions.

» Games like *Tails' Adventure* and *Triple Trouble* are increasingly rare, especially the PAL versions

Early launch titles included *Columns*, *Super Monaco GP*, *G-Loc* and *Castle Of Illusion* (a direct port of the Master System title) *Wonder Boy*, *Woody Pop* and *Sonic The Hedgehog* followed shortly afterwards. The initial Game Gear launch at £99 99 was for the machine only, with later bundles including *Columns* or *Super Monaco GP* for the same price. *Columns*, a game created by Jay Geertsen for DOS and ported to the Atari ST before he sold the rights to Sega, focused on matching three jewels according to colour to make them disappear. Principally aimed at competing with *Tetris*, *Columns* never really had a chance of winning people away from Nintendo's flagship title, but it was popular enough to keep Sega's hopes alive. Sega's popular *Sonic The Hedgehog* mascot also boosted sales due to his 'cool' image. The bundled package of *Sonic* with the machine and a power adaptor (previously bought separately) at £129 99 proved hard for gamers to resist.

After the initial excitement and success at launch, faults with the Game Gear soon became apparent. While it had a sleek sophisticated appearance, it was a monster in size compared to the Game Boy, which wasn't that small itself. In Japan, the Game Gear had numerous quality issues, with early models breaking easily, doing little to endear it to an increasingly apathetic public although such problems did seem to be less of an issue elsewhere. The biggest drawback, and the main factor that ultimately resulted in Nintendo winning the handheld war, was the lack of substantial battery life. The Game Boy may have had a monochrome screen but this enabled it to have around 20-30 hours battery life in comparison to the Game Gear's rather feeble six hours. While Sega released rechargeable battery packs, cutting the cost down for consumers, it only extended power to 8-10 hours and their bulkiness added to the cumbersome weight of the Game Gear.

However, the Game Gear also had a lot in its favour compared with the Game Boy. It's coloured, backlit display was impressive for the time (despite blurring issues), meaning it was easy to play in poor lighting conditions, and its stereo sound was an improvement on Nintendo's offering. The D-pad was bigger and more responsive, and the lengthways structure meant it was more ergonomically designed for hours of play rather than the Game Boy, which was prone to cause cramp after extended periods of time.

» Exclusively released in Japan only, *Gunstar Heroes* now goes for a pretty penny

» The Game Gear Tuner is still highly collectable but won't work on later models or the Majesco-released machines.

In order to draw in more customers, different coloured Game Gear models were released, most notably in Japan. America received a blue sports edition in 1993 bundled with *World Series Baseball*, and another supplied with *The Lion King*. This would be the only colour model besides the standard black one that Americans would receive. A Coca-Cola limited edition machine packaged with the game *Coca-Cola Kid* appeared in Japan in 1994, which was a red/orange hue and had the Coca-Cola logo imprinted on the front. Later models included a *Magic Knight Rayearth* bundle (red with the game's logo visible on the handheld); a limited-edition white Game Gear that could be bought in a case with a matching TV tuner; a light blue Game Gear, which also reached Canada and Australia, a smoke edition not too dissimilar to the standard black; and the yellow Game Gear, which was the last to be released in 1996. Despite the variety of different packages in Japan, the gaming public remained indifferent to the machine, with only 1.78 million sales from the country out of the total global figure of 8.65 million by 2004. None of the coloured machines ever reached Europe.

LACK OF BATTERY LIFE ULTIMATELY LED TO NINTENDO
WINNING THE HANDHELD WAR. THE GAME BOY HAD 20-30
HOURS COMPARED TO THE GAME GEAR'S FEEBLE SIX

» One of the UK's adverts focused on the games, rather than attacking the Game Boy

» Wise words here, from *Shining Force Gaiden*.

One of the other problems with the Game Gear was a lack of software. Nintendo had 90 per cent control over the market that ensured only a few third-party companies could create games for the Game Gear, leaving the rest down to Sega. As a result, many games were essentially ports of pre-existing Master System titles, something that didn't go unnoticed among the hardcore fraternity. It wasn't all bad though, as the Game Gear would host some excellent Sega games that couldn't be played elsewhere. *GG Shinobi* was an excellent addition to the popular franchise, which went on to receive a superb sequel (*Shinobi 2*), while Sonic was milked for all it was worth, including releases of *Sonic Blast*, *Sonic Triple Trouble*, *Sonic Labyrinth*, *Tails' Adventure*, *Tails' Sky Patrol* and *Sonic Drift 1* and *2* (known as *Sonic Drift Racing* in Europe). All of which could only be played on a Game Gear, until Tec Toy bought the licence to port some of the games to the Master System several years later.

Classic RPG series such as *Phantasy Star* and *Shining Force* got the handheld treatment, although only the third game, *Shining Force: Sword Of Hajya*, ever enjoyed an English translation. *Mega Man*, *Gunstar Heroes*, *Panzer Dragoon Mini* and *GG Aleste* were Japanese only exclusives that, to this day, fetch high sums of money due to their rarity. The diversity of the catalogue, despite its Master System roots, was enough to muscle in on the Lynx's territory, managing to gain sales away from Atari's handheld, but failing to make a dent in Nintendo's dominance.

While the Game Gear received the usual accessories you would come to expect, such as, a link-up cable, carrying cases, car lighter adaptors and rechargeable battery packs, it also had some unique accessories that made it stand out from the Game Boy and gave it some added popularity. A TV tuner that slotted into the back of the cartridge slot was released, turning it into an all-round entertainment unit. At the time, a TV tuner on a handheld console was an innovation completely ahead of its time. Although, priced at £74.99, it was expensive considering that portable televisions

» This rather nifty limited edition Game Gear came with a matching TV Tuner, but was only released in Japan.

didn't cost a lot more. However, the device appealed to collectors and gave the Game Gear a unique status on the market. A dispute with the manufacturer ensured that the TV tuner didn't receive prolonged support however, as later models proved incompatible with the gadget, even with Sega's own production line. Despite being a novelty, the TV tuner is highly sought after and even today you should expect to pay £40-£50 for one in good condition. A Master System convertor was also released, allowing gamers to play Master System titles on the move, which instantly expanded the back catalogue of available software. All games worked with the convertor, but as everything had to be shrunk down to the smaller screen, it meant that any titles with lots of text such as RPGs were barely readable and any games that were primarily sprite based, such as *Space Harrier*, were incredibly difficult to see. While Sega was working on a device that allowed Game Gear titles to be played on the Master System, it never materialised due to the problems of the Game Gear's larger colour palette.

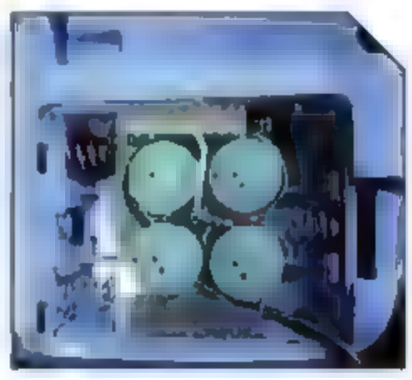
Eventually, in 1997, support for the handheld dwindled despite lasting admirably for six years against tough opposition. Sega, for most of the machine's lifespan, was far more focused on the big consoles such as the 32X, Mega CD and the Saturn to really give the Game Gear the proper marketing support it needed and finally withdrew the product. The machine resurfaced briefly in 2000 when Majesco bought the rights for the Genesis and Game Gear from Sega. Majesco's model differs slightly from the original although it features the same Sega board, some of the accessories including the TV tuner don't work, while certain Master System convertors are incompatible or fail to run some of the games properly. In many ways the handheld is better than Sega's model as it's a bit lighter and has a nicer screen, but the build of the machine feels cheaper than its predecessor.

The demise of the Game Gear was a sad occasion for its devoted following, even though it went largely unnoticed by the rest of the gaming world. Yet for all the handhelds that have gone up against the might of Nintendo and ultimately lost out, Sega's Game Gear managed to last the longest, only outdone in sales by Sony's PSP. For its fans, however, it remains a piece of classic gaming hardware whose legacy lives on.

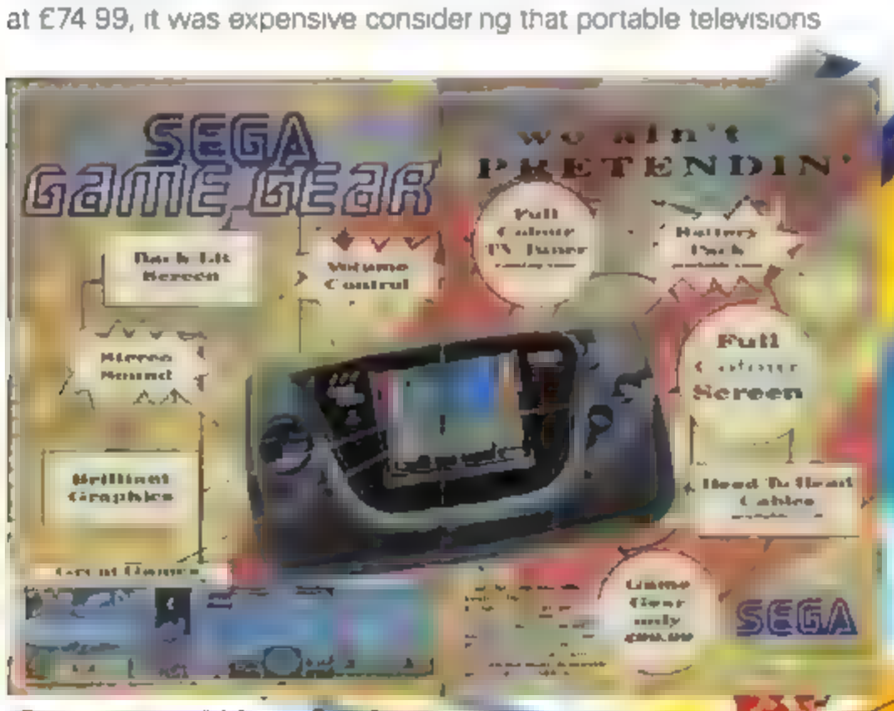
» The wonderful *GG Shinobi* scored a fully deserved 90% when it was reviewed in *Mean Machines*.

Hacking The Gear

In an issue of *EGM* magazine, Sega was shown hooking the Game Gear machine up to a television enabling games to be played on the big screen. Such a method was never made commercial but various modders in the scene have managed to hack into the machine in order to do this. The modification works by soldering specific circuit boards through the back of the battery compartment. Until recently, such a modification resulted in all games playing in black-and-white, but in 2004, Xavier and Sankich managed to find ways of soldering the machine so that the games will display in colour. Other gamers have also found ways of getting Game Gear games to work on the Master System, requiring the use of a Master System flash cart. Game Gear ROMs and some Z-80 programming knowledge. Visit **www.disgruntleddesigner.com/chrisc/segahacking** for more details.



Thanks to **www.segaxtreme.net** for certain photographs and Damien McFerran for providing several magazine scans.



» They weren't pretendin'. An early Game Gear advert.

PERFECT TEN GAMES

GUNSTAR HEROES

RELEASED: 1993
DEVELOPED BY: TREASURE
BY THE SAME DEVELOPER: MAZIN SAGA

Now, this is very impressive. It's obviously cut down when compared to the Mega Drive original, but this adaptation of Treasure's superb run-and-gunner is still utterly brilliant and is a must own for anyone with a love of Sega's bulky handheld.

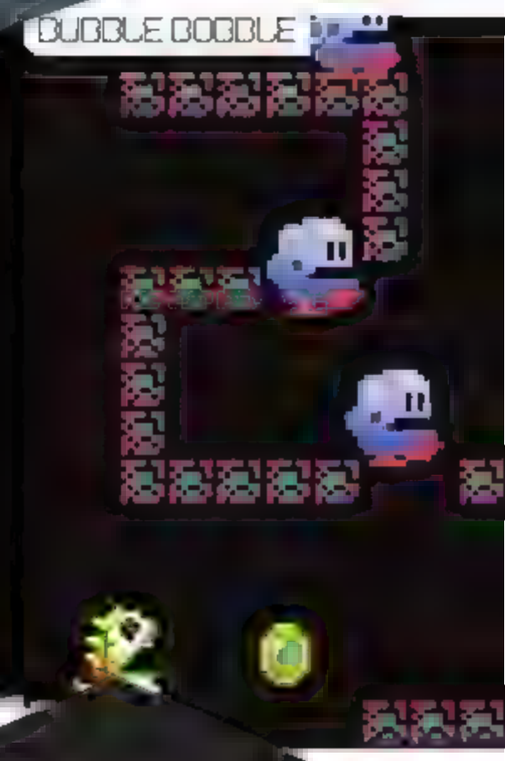
Incredibly fast paced and with some gob-smackingly good visuals, *Gunstar Heroes* shrinks down admirably well to the Game Gear's tiny screen and offers an amazing amount of pyrotechnical wizardry. Gameplay is as intricate and as varied as ever, and it's further proof that Treasure is one of the most talented developers around. *Gunstar* is extremely hard to get hold of now, so expect to pay a pretty penny for it.

WONDER BOY: THE DRAGON'S TRAP

RELEASED: 1992
DEVELOPED BY: WESTONE
BY THE SAME DEVELOPER: WONDER BOY

Wonder Boy, like many other Game Gear titles, is basically a port of the Master System original. This should not put you off, however, as *The Dragon's Trap* was one of the best games to appear on the 8-bit machine.

The Dragon's Trap is a huge, sprawling adventure that sees the poor lad having to change into a variety of different animals after being cursed by the game's imposing dragons. It's going to cost you a fortune in batteries, but if you're looking for a solid arcade adventure, you really won't find anything finer. Quite simply one of the Game Gear's finest moments. Even if it is just a port.



BUBBLE BOBBLE

RELEASED: 1994
DEVELOPED BY: TAITO
BY THE SAME DEVELOPER: RAINBOW ISLANDS

Taito's *Bubble Bobble* must be one of the most ported games in history, but when you consider how good it is, it's not surprising that so many platforms have featured a version of it.

Based on the Master System port, which itself was a rather brilliant conversion, this Game Gear effort perfectly captures the charm of the arcade original and is another essential release for Sega's portable console. There's a cracking two-player mode, although you'll need the required link-up cable and a second copy of the game. The graphics are as cute as previous versions, and the timeless gameplay is as strong as ever. One of the best platformers ever made.

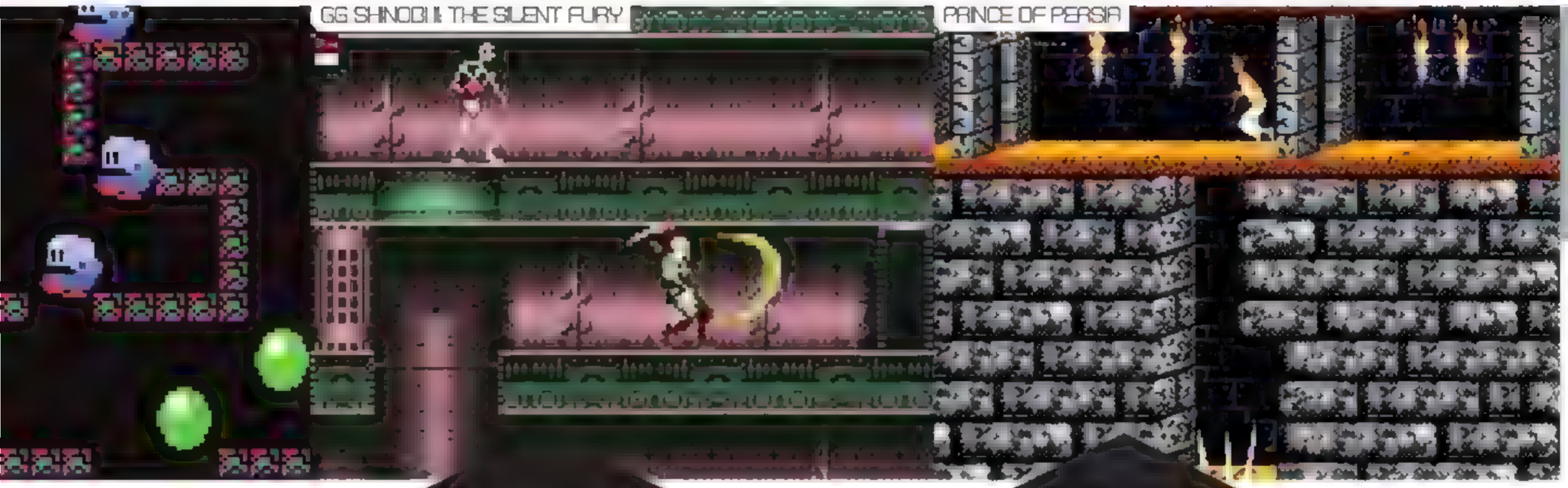
BAKU BAKU ANIMAL

SONIC THE HEDGEHOG 2

STREETS OF RAGE 2

GAME GEAR

It put up a brave fight for six years, but even Sega and Sonic couldn't stop the success of Nintendo's monochrome Game Boy. Console yourself with ten of the machine's best games



GG SHINOBI II: THE SILENT FURY

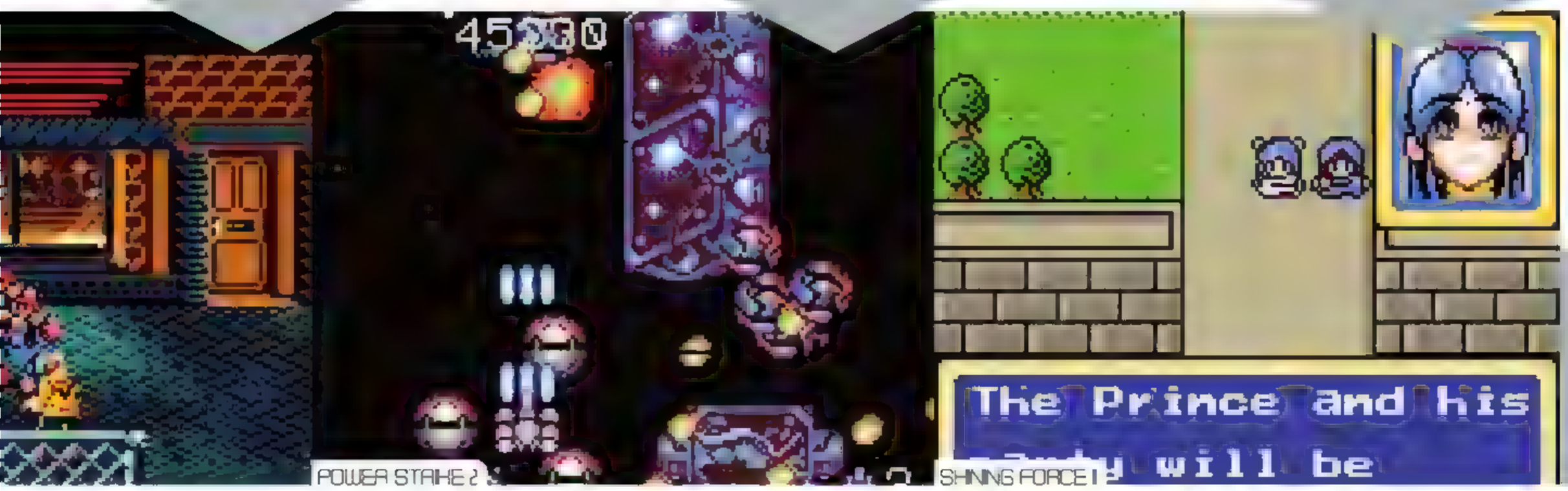
- RELEASED: 1992
- DEVELOPED BY: SEGA
- BY THE SAME DEVELOPER: SHINOBI II: RETURN OF THE NINJA MASTER

While the original is unquestionably a classic slice of ninja heaven, the superior sequel improves on it in every possible way. You're still controlling a different selection of ninjas – after you've rescued them of course – but now the far tighter level design, faster flowing action and greatly improved gameplay mechanics make this Game Gear exclusive title even more desirable. It's also far more balanced than its predecessor, which was notoriously difficult in places, meaning it's the perfect place to start if you're looking for a solid action title or are brand new to the series – where have you been for the past 20 years?

PRINCE OF PERSIA

- RELEASED: 1992
- DEVELOPED BY: BRODERBUND
- BY THE SAME DEVELOPER: MYST

Like Taito's *Bubble Bobble*, *Prince Of Persia* seems to be another title that's been ported to practically every console and computer known to man. Based on the Master System outing, this is nevertheless a stunning conversion that features amazingly convincing animation, slightly more responsive controls, and some simple yet very effective visuals. Experts will obviously be expected to whizz through the game in under an hour, but *POP* has been put together with so much care and attention that you'll be more than happy to just languidly stroll around and drink in the superb level design while admiring the Prince's natty choice of clothing.



Year released: 1990 (Japan), 1991 (US), 1992 (UK)

Original price: £149.99 (including *Super Mario World*)

Buy it now for: £20+

Associated magazines: Nintendo Magazine System, Superplay, Total, N-Force, SNES Force

Why the SNES was great... Nintendo's 16-bit powerhouse represents the true Golden Age of videogaming as the likes of Konami, Squaresoft and even Nintendo itself have arguably never been on better form than when designing games for this machine. The best SNES releases featured flawless gameplay and graphics and set a high benchmark for quality entertainment software that, in many cases, endures to this day

SNES

BY RELEASING THE SUPER NES A YEAR LATER THAN ITS NEAREST RIVALS, NINTENDO FACED THE DAUNTING TASK OF CONVERTING A GENERATION OF GAMERS TO ITS NEW CONSOLE. IT COULD HAVE GONE HORRIBLY WRONG BUT, AS ASHLEY DAY RECALLS, ANYTHING IS POSSIBLE IF YOU HAVE THE RIGHT GAMES

With a NES in 30 per cent of American homes and the word 'Famicom' synonymous with videogames in Japan, Nintendo was understandably reluctant to release a successor to its best-selling console and chose to support the ageing 8-bit machine for as long as it could. It was, however, only a matter of time before the advance of technology allowed Nintendo's competition to take the lead, and by 1988 both NEC's PC-Engine and Sega's Mega Drive offered a far more powerful entertainment experience. Nintendo could no longer rest on its laurels and secretly began work on its next 'Family Computer': the Super Famicom.

The 16-bit system had been developed and designed by Masayuki Uemura, who had spent months attempting to make the Super Famicom backwards compatible with Famicom cartridges but had found that the massive leap in technology had set Nintendo's machine so far in advance of its predecessor that building in Famicom compatibility would have been far too costly. Without backwards compatibility to bridge the transition between consoles, Nintendo would need an irresistible launch line-up to tempt existing Famicom owners to upgrade. Knowing this, Nintendo's president, Hiroshi Yamauchi needed his best man on the job and, as soon as development of *Super Mario Bros 3* was complete, he charged Shigeru Miyamoto and his 30-man team with the task of exploring the new hardware's game-playing capabilities.

One of the biggest tricks that the hardware had up its sleeve was the now infamous Mode 7: a graphical hardware mode that allowed sprites to zoom in and out and rotate in a way that simulated a 3D depth-of-field effect. Neither the Mega Drive nor PC-Engine was

To CD Or Not CD.

Wishing to exploit the advantages of the growing CD-ROM medium Nintendo had planned a SNES CD-ROM drive from as early as 1988 and had courted both Sony and Phillips with the proposal. The fruits of those early endeavours were a series of Nintendo-licensed games for the Phillips CDi and a prototype add-on from Sony that was eventually developed into the PlayStation we know today. If Nintendo had not backed out of the SNES/PlayStation partnership then the videogame landscape would be unrecognisable and this Retroinspection might tell the tale of a very different console. It is unclear how many games were in development for the SNES-CD but we do know that *Secret Of Mana* was originally CD-based with a planned branching story. The game had to be dramatically cut back to fit on cartridge, a process that was instrumental in convincing Squaresoft to move *Final Fantasy VII* from N64 to PlayStation.

Secret Of Mana originally started off as a CD title, complete with branching story lines.

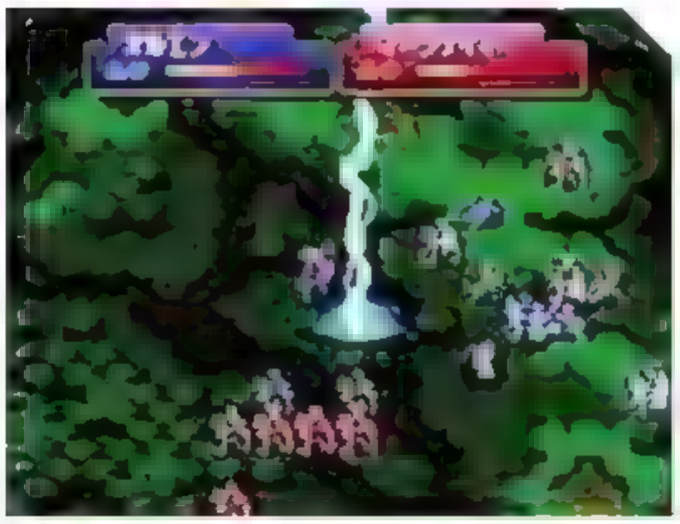
The Japanese packaging evoked a playful image that was missing from the mature design of the console.

The SNES Jr made it to the US, but its rarity makes it much easier to find the Japanese version.

capable of sprite scaling on such a level so Nintendo decided that the first three Super Famicom games would take advantage of the innovative feature. After 15 solid months of R&D, Miyamoto and co began work on *F-Zero*, *Pilotwings* and *Super Mario Bros 4*, which all used Mode 7 to varying degrees. However, with only ten months until launch day, the team was only able to complete two of the games on time and *Pilotwings* (the most technically demanding of the three) slipped by a month.

By 20 November 1990, Japanese demand for Nintendo's new console had reached fever-pitch and any worries that the machine would fail to entice existing Famicom owners were washed away. Demand for the console was so high that the Hankyu department store in Osaka had to stop taking pre-orders only a week after they started. In retrospect the release of the Super Famicom heralded the age of hysteria that has defined every hardware launch to this day. By 20 November, total pre-orders numbered in excess of 1.5 million yet only 300,000 machines shipped. Fearing that several Yakuza groups planned to hijack the Super Famicom shipment, to sell on at artificially inflated prices, Nintendo commenced 'Operation Midnight Shipping' in which the entire batch of 300,000 machines were hauled across Japan in the very early hours of the 20th. Thanks to these dramatic efforts, the launch was a rousing success. the Super Famicom sold out in seconds, even with only two launch titles. Yet when one of those titles was the sequel to the bestselling game of all time, success was a certainty. Despite being the least technically demanding of the Super Famicom's launch titles it was *Super Mario Bros 4*. *Super Mario World* that shifted the machine. *Super Mario World* expanded on its predecessors by offering finely tuned platforming gameplay, beautiful pastel graphics and a staggering 79 levels. The game is still remembered, 16 years on, as the best 2D platform game of all time so it's no surprise that Nintendo relied on it to push sales of its console.

When it was time to introduce the renamed Super Nintendo Entertainment System to the UK, a typical 17 months after the Japanese release, Nintendo made the bold decision to bundle *Super Mario World* with every SNES console. Making for one of the best freebies of all time, *Mario* helped to move many a SNES into British living rooms that summer, but arriving two years after the Mega Drive proved very costly. Sega's black beauty was phenomenally popular in Europe, thanks to its exclusive sports simulations and arcade conversions, and left little room for competition. It wasn't until Christmas 1992 that the tide truly began to turn, thanks to Capcom's *Street Fighter II*. The original arcade game had spawned a worldwide craze, the likes of which had not been seen since the days of *Pac-Man* and *Space Invaders*, and whichever home console netted a conversion first would benefit from a serious rise in sales. Sure enough, Nintendo managed to snag Capcom's seminal brawler a full year before Sega and stole a significant slice of the UK market in the process. A pattern was starting to form: although Sega's success was assured by its

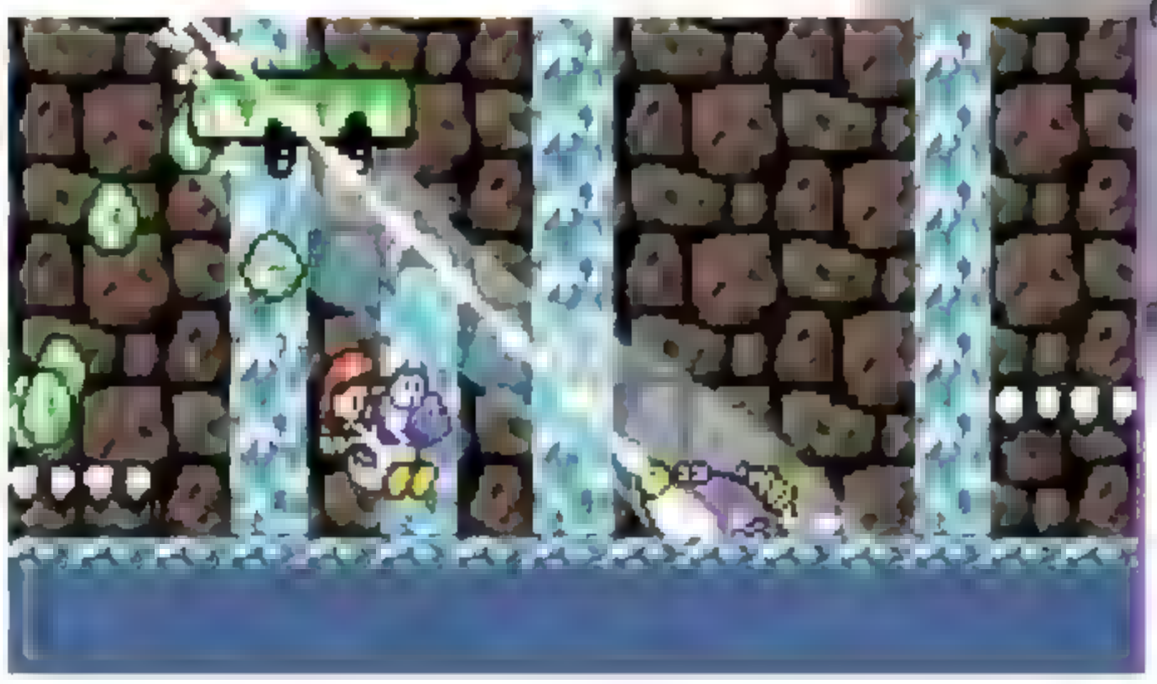


Fire Emblem: Thracia 776 was one of the last games to be released for the Super Famicom in 1999.

Donkey Kong Country used Rare's Advanced Computer Modelling to create previously inconceivable visuals on the ageing SNES.

An enigmatic two-page advert for *Secret Of Mana* that bravely chose not to use screenshots.

Right: The Super Game Boy allowed GB games to be played on a TV set and expanded the SNES library by thousands. **Right**: An advert for the surprisingly decent SNES conversion of *Street Fighter Alpha 2*



Top left and right: By tying the release of *Super Mario World* to the SNES, Nintendo ensured the success of its new console. The Mode 7 effects in *F-Zero* really showed off the power of the Super Nintendo **Bottom left and right:** *Star Fox* (renamed *Star Wing* in the UK) used extra hardware to push the SNES beyond its limitations. By arriving so late in the console's life, *Yoshi's Island* went tragically unnoticed

n-house conversions and its relationship with EA, it was Nintendo's SNES that turned the most heads by continually providing the classiest most desirable games. It started with *Mario* and *Street Fighter* and continued through *Zelda*, *Secret Of Mana*, *Axelay*, *Super Mario Kart* and hundreds of other top-drawer games that would go on to steal the hearts of hardcore and casual gamers alike.

As the years went by and more powerful competitors (like the 3DO and Jaguar) fell by the wayside the SNES's excellent range of software continued to impress with the aid of Nintendo's quality control, and when it became apparent that the console was beginning to show its age, Nintendo built partnerships with third-party developers to find new ways of making their games look next generation even if the original hardware wasn't.

The first of these partnerships came about when the UK's Argonaut Software impressed Nintendo by programming the monochrome Game Boy to display full 3D graphics. On the strength of the Game Boy title, two of Argonaut's employees, Giles Goddard and Dylan Cuthbert, achieved what few British coders have and secured positions at Nintendo's Kyoto headquarters. There they developed the "Mario Chip" (later renamed Super FX) a cartridge embedded co-processor that would allow the SNES to display true 3D polygonal visuals for the first time. The first Super FX game they created, with the legendary design talents of Shigeru Miyamoto was *Star Fox*: an astounding 3D space combat game that wowed SNES owners of 1993, who couldn't believe the console was capable of such graphics. The following year another incredibly talented UK software house found a way to push the SNES beyond its preconceived limits. Rare, who had previously pushed the ZX Spectrum much farther than anyone thought possible, had been using Silicon Graphics workstations to test concepts for Nintendo's next console – the Ultra 64. In doing so they discovered a way of using high-quality pre-rendered graphics on the humble SNES, which they used to create the beautiful *Donkey Kong Country* and an arcade conversion of the previously Ultra 64 bound *Killer Instinct*. With the PlayStation and the Saturn on the horizon the startling looks of Rare and Argonaut's games must have made the SNES a very tempting reason not to upgrade.

Nintendo's luck couldn't last forever though, and despite pushing the hardware to its limits, sales of the SNES slowed to a trickle in the UK – due in no small part to the globe-consuming success of PlayStation. Nevertheless, like all good consoles, the SNES was due a last hurrah and that came in the form of *Super Mario World 2: Yoshi's Island*. The gorgeous platform game used a combination of Mode 7 and the Super FX2 chip to pump out some of the best effects the SNES had ever seen and with the classic Nintendo gameplay it became one of the console's most loved titles. The gloriously beautiful platform game proved that the Super Nintendo was far from dead but was sadly lost in the excitement of the new era of 3D games and the hype surrounding *Super Mario 64*. Though it attained outstanding critical acclaim, *Yoshi's Island* was a commercial flop in the UK and was one of the last significant SNES titles to see a European release alongside *Donkey Kong Country 3* and *Street Fighter Alpha 2* in December 1996.

As is typical of Japanese consoles, the native Super Famicom lived on much longer than the Western SNES thanks to continued hardware support and a greater demand for software. The Satellaview (see A Room With A Satellaview) broadcast new Super Famicom games directly into players' homes from 1995 to 2000 and in doing so kept the large user base active. Introduced in 1998 the Super Famicom Jr was a smaller, sleeker model that was a reasonably priced alternative to the Nintendo 64 and allegedly small enough to be sold in street vending machines. Top-quality games continued to be released until 2000 with *Fire Emblem: Thracia 776* and a series of *Picross* titles being the most noteworthy.

Production of the Super Famicom finally ceased in late-2003, which would seem like a good innings until you consider that production of the original Famicom was discontinued in the same year. Regardless, throughout its 13-year lifespan the SNES/Super Famicom achieved widespread success and adoration thanks to Nintendo's willingness to keep the machine alive through groundbreaking hardware expansions and a virtually limitless string of superb releases.

A Room With A Satellaview

The Satellaview has such an unusual history that we could fill a RetroInspection on this intriguing add-on alone. The device allowed the Super Famicom to acquire games from St.Giga, a popular Japanese satellite service. At pre-scheduled times the service would broadcast a chosen game, which could then be downloaded to a flash cart and played offline. The service was discontinued in 2000, but it is still possible to find flash carts with games saved to them. These extreme rarities should be of particular interest to Nintendo fans as the service featured exclusive versions of classic Nintendo games including *Zelda*, *Famicom Wars*, *Fire Emblem* and *Excitebike*. There was even a text-based sequel to *Chrono Trigger*, known as *Radical Dreamers*, and some games, like the satellite version of *A Link To The Past*, could only be played at certain times of day because the Satellaview broadcast live voice-acting into the game.

Head of Nintendo for 53 years, Hiroshi Yamauchi was instrumental in the company's early success.

SNES PERFECT TEN GAMES

Quite simply, this has been the single most difficult Perfect Ten list to compile, a fitting tribute to the fact that Nintendo's SNES had a phenomenal number of superb games available for it. Anyway, after much deliberation, here are our favourites

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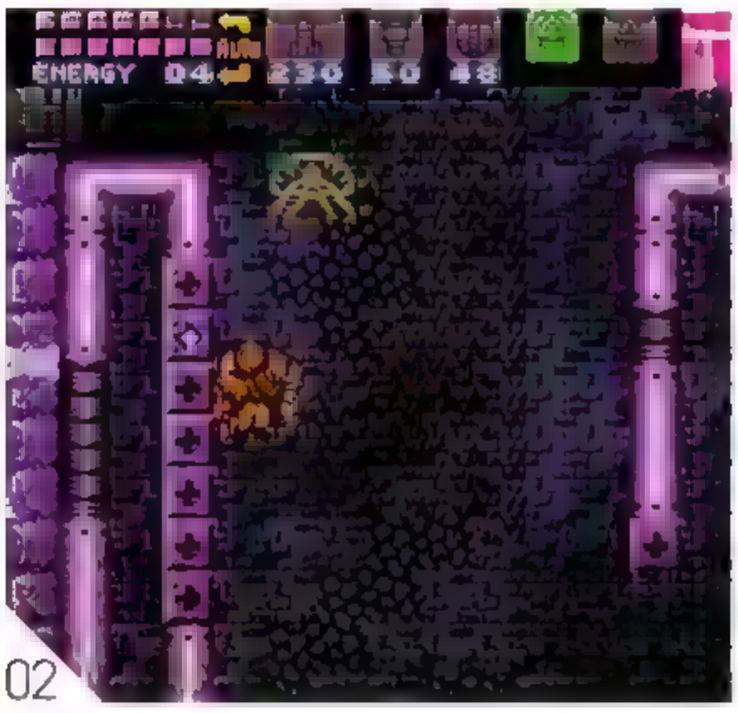

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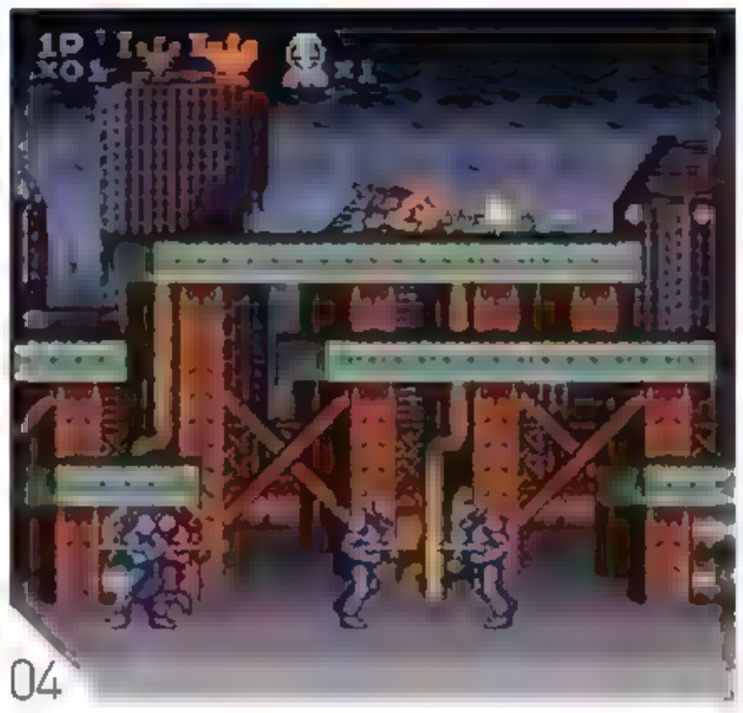


04

SUPER MARIO KART

- **RELEASED:** 1993
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** N[illegible]E
- **BY THE SAME DEVELOPER:** SUPER MARIO BROS

01 We've been playing the original *Super Mario Kart* on and off now for a staggering 16 years and it still remains fresher than a baker's dozen that's just popped out the oven. Meticulously designed circuits, a well-balanced range of weapons – including the greatly missed feather – and impressive visuals proved perfectly that there was so much more to everyone's favourite plumber than simply jumping on wayward Koopas. While the cups provided plenty of fun, it was the stunning Time Trial mode and sublime multiplayer games that kept us constantly coming back for just one more go

SUPER METROID

- **RELEASED:** [illegible]
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** INTELLIGENT SYSTEMS
- **BY THE SAME DEVELOPER:** ADVANCE WARS DS

02 *Super Metroid* is a game that works on a variety of levels. While some marvelled at its motherly themes, stunningly created environments and remarkable attention to detail, others were simply impressed with the sheer amount of crap you could blow up in it. Regardless of how you feel about Samus's only 16-bit adventure there's no denying that *Super Metroid* remains a staggering achievement that perfectly combines the rush of shooting huge bosses with the wonder of exploring vast new areas like no other SNES game around. Little wonder then that it took Nintendo eight years to come up with a sequel that could do it justice

THE LEGEND OF ZELDA: A LINK TO THE PAST

- **RELEASED:** 199[illegible]
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** THE LEGEND OF ZELDA: THE ARIA OF TIME

03 There's no denying the superiority of *Ocarina Of Time*, but *A Link To The Past* remains a wonderfully accomplished adventure that deserves to sit proudly in every SNES owner's collection. Every dungeon you explore is crafted to perfection and while they start off easy, you'll soon be scratching your head over Miyamoto's deviously designed puzzles. The many weapons you discover are well balanced and every encountered boss is a masterstroke in design. Then of course you have the two unique worlds that Link can eventually switch between, thus making an already sprawling game even larger. Quite simply one of the finest 16-bit adventures ever made

CONTRA III: THE ALIEN WARS

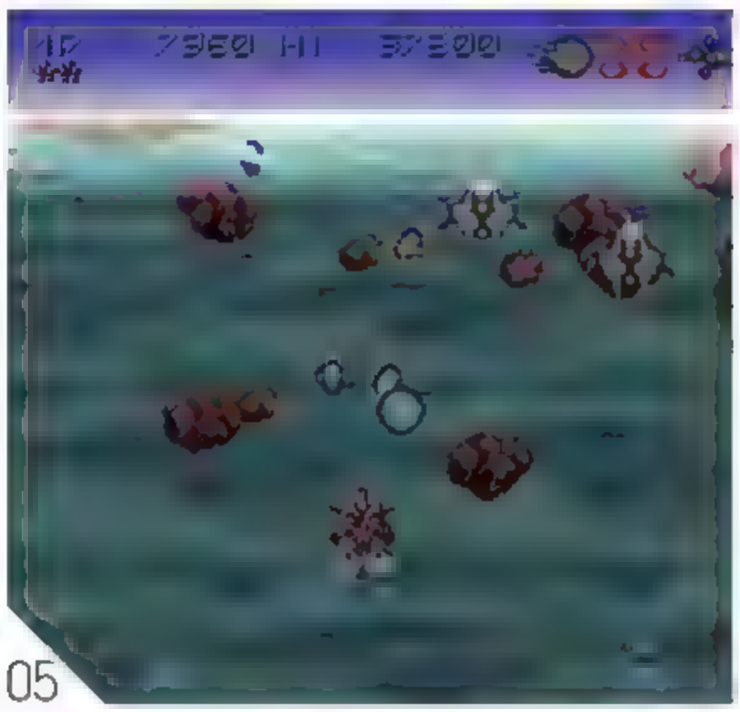
- **RELEASED:** 199[illegible]
- **PUBLISHED BY:** KONAMI
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** SUPER CASTLEVANIA IV

04 Konami released some outstanding titles for Nintendo's 16-bit wonder, but this cracking effort from 1992 is arguably one of its best efforts. Each level is a roller coaster ride of destruction and featured the SNES hardware on fine form. The sprites are full of detail, the many bosses a joy to behold, and there's a ridiculous amount of Mode 7 trickery going on. Add to all that a fantastic, stomping soundtrack, an awesome array of different weapons and some groovy overhead levels (that can be rotated with the left and right triggers) and you have a run-and-gun title that would be essential on any format

AXELAY

- **RELEASED:** 1993
- **PUBLISHED BY:** KONAMI
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** CRADLE

05 There's a host of great shooters available for the SNES, but few can compare to the brilliance that is Konami's stunning *Axelay*. From its quasi-3D levels to its utterly amazing music, every moment of *Axelay* is exhilarating to play through. While the level design and available weapons are worthy of praise, it's the immense, striking bosses constantly thrown your way that truly astound. Huge metallic spiders, colossal ED-209 styled mechs and a gigantic lava creature are just a few of the mayors you have to deal with and each is breathtaking to behold. Why's it's never been released on the GBA we'll never know



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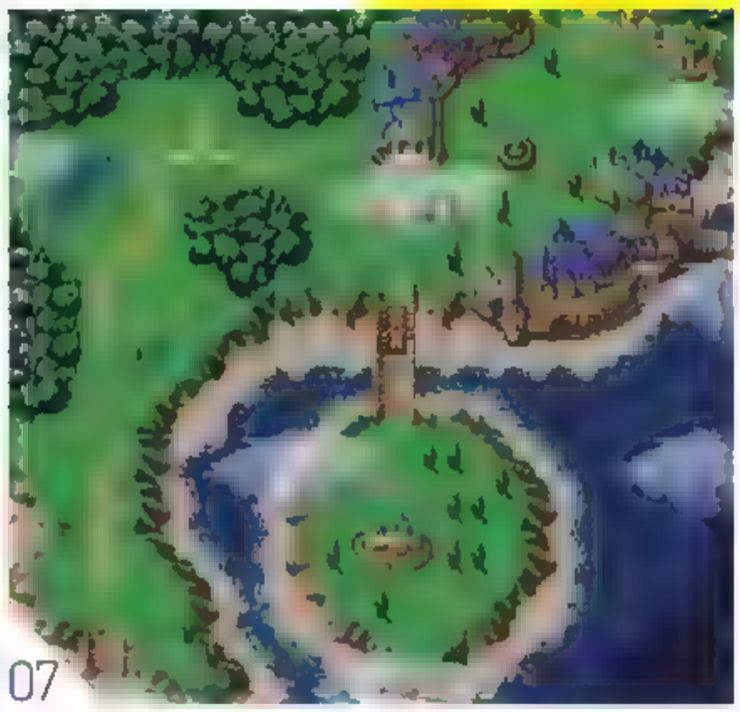

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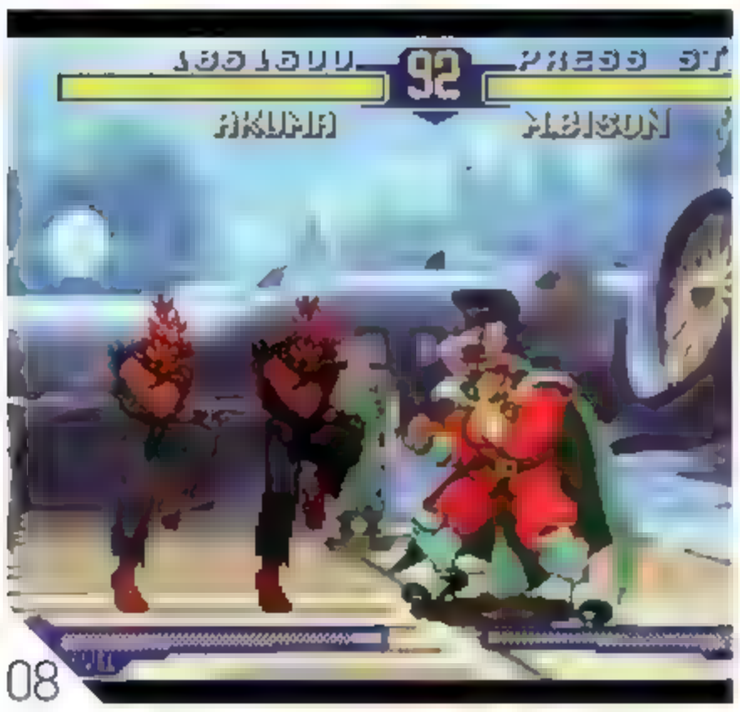

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SUPER MARIO ALL-STARS

- **RELEASED:** 1993
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** SUPER MARIO SUNSHINE

06 What's better than three classic *Mario* NES outings on one cartridge? Why, three *Mario* NES games with improved aesthetics and a fourth exclusive title that had only originally appeared in Japan of course! *All-Stars'* triple whammy of *Super Mario Bros 1, 2* and *3* made it incredible value for money and were great examples of taking old games and updating them for a newer platform. Add in *Super Mario Bros: The Lost Levels*, which was effectively a tougher version of the original game and allowed you to choose from either brother and you had an amazingly comprehensive package. Finally, if you bought the version that came boxed with a SNES you received *Super Mario World* on the cartridge. Bargain!

CHRONO TRIGGER

- **RELEASED:** 1995
- **PUBLISHED BY:** SQUARESOFT
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** FINAL FANTASY X

07 It would have been all too easy to go with Squaresoft's *Secret Of Mana*, so we've decided to focus on this little beauty instead. While Squaresoft's epic RPG borrows plenty of ideas from the *Final Fantasy* series, you just can't help but be impressed by the sheer amount of love that has gone into crafting this astonishing RPG. Although the central story line is fairly predictable, it soon begins to twist and turn all over the place and introduces plenty of memorable characters and sub plots. The combat system is a joy to use and the use of sound throughout is outstanding. It all combines to create one of the most engrossing RPGs we've ever played. Utterly essential.

STREET FIGHTER ALPHA II

- **RELEASED:** 1996
- **PUBLISHED BY:** CAPCOM
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** SUPER GHOULS N GHOSTS

08 Capcom's second *Alpha* title was released late in the SNES's life, and as a result, was sadly overlooked by a great many gamers who had moved on to the newer, flashier consoles. Their loss was our gain, however, as it's easily one the best brawlers on Nintendo's 16-bit wonder. Great looking sprites, a solid roster of characters, new moves, plenty of additional animation and thumping good gameplay made *Alpha II* a winner. We've no idea why the first game didn't appear on the SNES, but Capcom more than made up for it with this excellent sequel. An outstanding fighter.

PILOTWINGS

- **RELEASED:** 1993
- **PUBLISHED BY:** NINTENDO
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** DONKEY KONG

09 The Mode 7 chip was used in countless SNES games, but never was its appearance more noticeable than in the wondrous *Pilotwings*. Taking control of a budding pilot, all the game required you to do was master licences for four different events. Skydiving, Rocketbelt, Light Plane and Hang Glider. While some of *Pilotwings'* events could be tricky to get to grips with, the elation you felt when they were finally mastered more than made up for it. Thanks to the excellent Mode 7 effects the sense of scale you encountered as you flew through the air was breathtaking, and wait until you finally get to use the hang glider .. Marvellous.

UMIHARA KAWASE

- **RELEASED:** 1994
- **PUBLISHED BY:** NHK
- **CREATED BY:** TNN
- **BY THE SAME DEVELOPER:** SHOUSA KYOU LEAGUE SERIES ACE STRIKER

10 It seems only fair to put at least one quirky Japanese title in our Perfect Ten, so our vote goes to the delightful *Umihara Kawase*. Taking control of an adorably cute little girl, the aim of each stage is simple – avoid the bizarre fishy enemies and reach the door in each exit. Of course, said exits often out of reach, and with your little tyke not being that great a jumper she has to rely on a handy elastic rope to get her around. Think *Bionic Commando* but with some decent rope physics thrown into the mix and you have a good idea of what to expect.

PHILIPS CD-i

THE CD-i IS KNOWN THOUGH MISUNDERSTOOD BY NEARLY EVERYONE. ALTHOUGH A FAILURE IT HAS BOTH GENUINE MERIT AND HISTORICAL IMPORTANCE, BEING SOMETHING OF A FORERUNNER TO SONY'S PLAYSTATION. JOHN SZCZEPANIAK, WITH ASSISTANCE FROM DEVIN SHOCKWELL, ATTEMPTS TO FINALLY CORRECT THE INACCURACIES AND MISTAKES, NOW CONSIDERED COMMON FACT, REGARDING HOLLAND'S FINAL FORAY INTO VIDEOGAME HARDWARE

Few systems are as unfairly maligned and misrepresented, with regard to the ratio of potential quality and historical significance they had, as the Philips Compact Disc Interactive multimedia system. In some ways it may have been a terribly flawed system, but – and this has to be emphasised – there were also positive attributes, along with a list of historical precedents and high-quality games. Its history is complex and shrouded in mistruths, while its lack of success, in hindsight, seems almost inevitable and the result of gross short-sightedness. It could have spearheaded a revolution, but instead it seems to have become a footnote in Nintendo's history. There was more to the machine than those infamous licences.

The company Philips is a Dutch enigma. Formed in the city of Eindhoven, in 1891 (technically the second oldest company in the world to dabble in games, after Nintendo, which is two years older), by brothers Gerard and Anton Philips. It made light bulbs. Philips moved on to other electrical items and – through repeated entries into the electronic multimedia and entertainment market, which had a cascading effect – set Holland apart from the rest of the world as a unique country with a fascinating locally concentrated videogame movement, one of the few, mostly isolated countries along with Japan, America and the UK, which were all in a league of their own.

Philips' first games hardware was the Videopac G7000 in 1978. Some years later the company became one of the first licensees for the MSX home-computer standard. With the hardware being so popular, Holland's MSX following became the biggest outside Japan. Philips' next (and final) form of "games" hardware, the CD-i, would end up being inextricably connected to both Sony and Nintendo – look closely at the history of gaming and you'll find that contrary to ignorant forumite screaming, most supposedly competing companies are forever jumping in and out of bed with each other in an orgy of behind-the-scenes business deals. Metaphorically speaking, of course.

Dead Memory Tells No Tales

Like the Mega CD, Saturn, Turbo Duo, and 3DO, the CD-i featured an on-board save facility powered by a battery. The big difference between the CD-i and aforementioned systems though, is they all had backup systems for when the batteries died. Sega's systems had data cartridges, the Duo had a special Hu-Card, while the 3DO an unwieldy add-on. When the CD-i lost its memory and all those precious saves, there was no easy solution. You could either open the CD-i, remove the main PCB and the Timekeeper RAM chip, then replace it (which was an insane nightmare in itself) or you could open the chip (for skilled technicians only), then use a 4mm and 0.5mm drill to expose and remove two wires connected to the battery, before connecting a 3 Volt Lithium cell, applying some hot glue, and replacing all the innards. Thankfully some systems like the LG GDI 700, GoldStar GPI 1200 and Philips Portable 370, all allow you to pop a new CR2032 button battery in whenever you need to.

"TWO WEEKS BEFORE RELEASE, HALF THE SUPPLY OF CD-i PLAYERS IN THE WORLD HAD TO BE SCRAPPED AND REDESIGNED" — STEVE WARNER

Year released: US late-1991/UK May 1992

Original price: USA: $2,000 (Model 910), UK: £600 (Model 205)

Buy it now for: £20-£40 for a 450 model depending on Digital Video Cartridge upgrade (more with software)

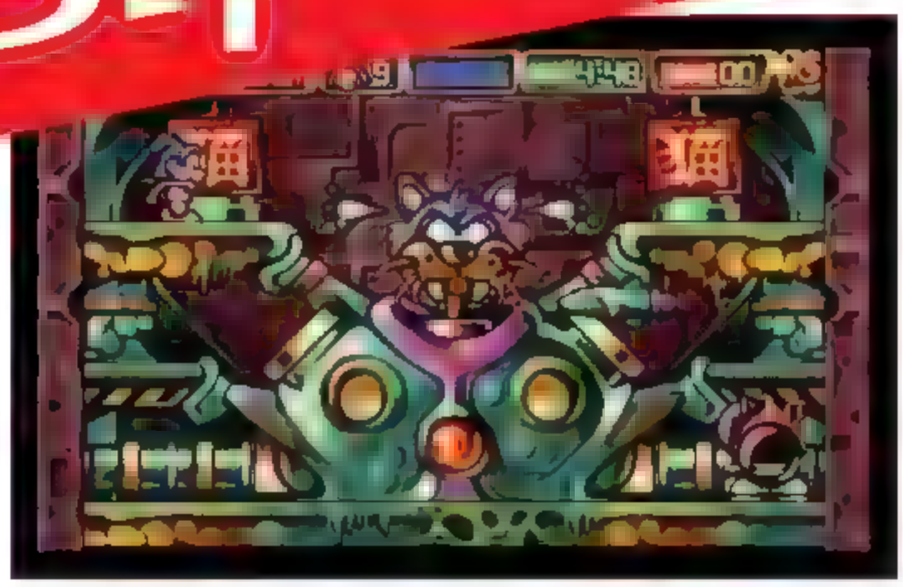
Associated magazines: UK: CDi, CD-i, USA: CD-i World, France: Generation CD-i. Plus other similarly named mags in the Netherlands and Italy

Associated websites:
www.cdinteractive.co.uk, www.icdia.co.uk, www.blackmoonproject.co.uk, www.cdiemu.org

Why the CD-i was great... A complicated history, great potential, internet capabilities, a long list of fun though mostly unknown games, several exclusive Nintendo-licensed titles – most of which were rather good – and of course the ability to watch VCD films. The CD-i was an unloved underdog, which, despite crippling problems and excessively high pricing, was in fact tremendous fun to use. Thanks to low second-hand prices, now is the perfect time to indulge in CD-i gaming.

PHILIPS CD-i

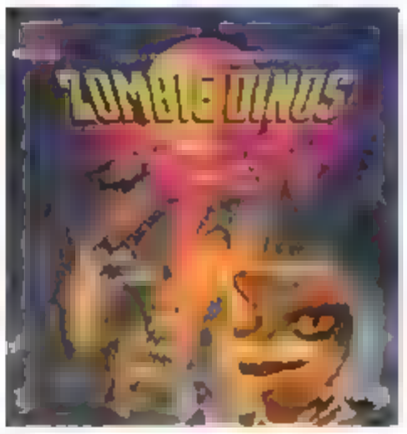
The Digital Video Cartridge (needed to run films and play some games) came out in 1993 and retailed for £150. People were not amused



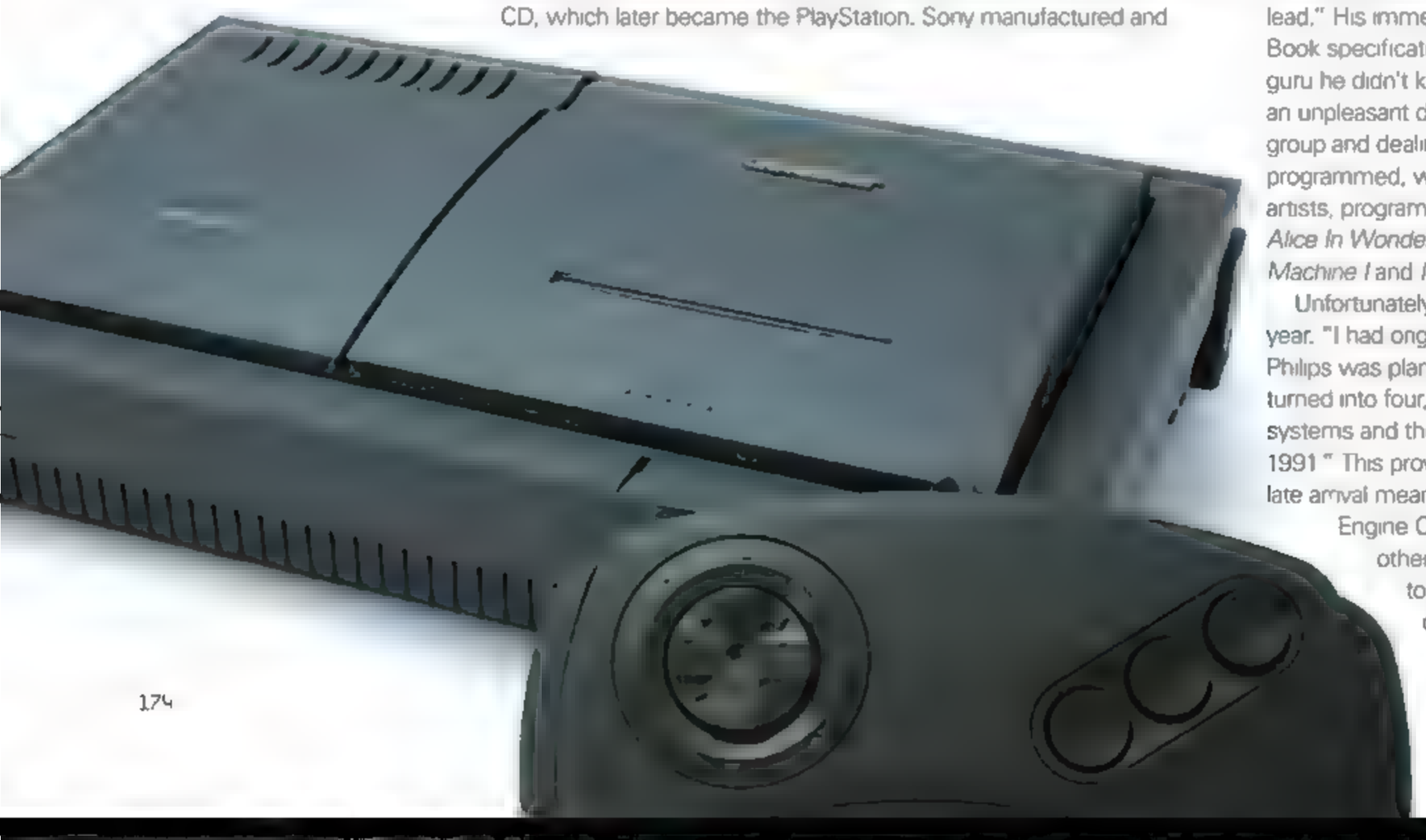
Years after release an anonymous source released codes for these Nudalities in *The Apprentice*, which escaped the censors' knowledge. It's the Hot Coffee that never was.

The Apprentice continually reinvents itself, with this mechanical cat boss on the left, and on the right Marvin has been turned into a swimming frog

We dare not show any further images from this 'edutainment' title.



Zombie Dinos From Planet Zeltoid was indescribably crap – not helped by lame actors who sound like Cam Clarke. Burn every copy you find, then burn your hands off.



"IT WAS JUST OBVIOUSLY NOT A GAME SYSTEM AND PHILIPS WAS ACTUALLY VERY CLEAR IN TELLING US THAT IT DIDN'T BELIEVE THE MARKET FOR THIS DEVICE WAS GAMES"

DALE DESHARONE

The Philips, Sony and Nintendo love-triangle goes back as far as the early-Eighties. During this time Philips and Sony began formulating the "Rainbow Books", a curious name for a set of Compact Disc standards (several books were defined by or involved other groups, like Kodak). The Red Book standard (1980) is perhaps the best known and relates to music CDs, while the Green Book standard pertains to the CD-i (Compact Disc Interactive Full Functional Specification). This was defined by Sony, Microware Systems Corporation and Philips (estimated to have done 90 per cent of development).

This means that, while Sony's first videogame hardware was the MSX standard, its first foray into CD-based gaming was the CD-i making the system something of a forerunner to the aborted SNES-CD, which later became the PlayStation. Sony manufactured and released several personalised models of self-branded CD-i, including portables such as the IVO-V10. When the company decided to enter the hardware market alone, it was based on the fact that it had already both co-created and dabbled in the medium of CD-based games.

Ironically this also means that, regardless of your thoughts on the CD-i itself, every single games machine that can read CDs is in some way connected to these formative years of Philips and Sony research and therefore also the related hardware. Were these living creatures, the CD-i would be the DNA ancestor of virtually everything using optical media today. Official Philips and CD-i representative/historian Jorg Kennis boldly proclaims such connections – Philips and Sony's influence reaches further than anyone realises.

CD-i development (Green Book) began in the mid-Eighties jointly between Philips and Sony, who together decided to use Microware's OS-9 Operating System in the machine, allowing real-time embedded application usage. Unfortunately several decisions were made that would ultimately lead to the system's downfall. It was also terribly late in arriving. Speaking to the ever-affable Dale DeSharone, he explained the launch date was supposed to be in 1988, with the companies involved only planning to allow a single year for the system to be understood and launch software developed.

DeSharone left sunny California in 1987 to move to Boston Massachusetts and work fulltime at Spinnaker Software, his role was to create a CD-i development team. He explains. "Spinnaker had a deal with Philips to produce seven launch titles. I was brought on to help understand the capabilities of the platform and act as design lead." His immediate supervisor was a member of the original Red Book specification team, Steve Yellick. Although a technological guru he didn't know about making games, and after a year met with an unpleasant demise. Suddenly DeSharone was manager of the group and dealing with every facet of development. "I designed, programmed, wrote editing tools and engines, and hired and managed artists, programmers and audio engineers. We built *Laser Lords*, *Alice In Wonderland*, *Sargon Chess*, *Paint School I* and *II*, plus *Story Machine I* and *II*."

Unfortunately they weren't able to complete things in the allotted year. "I had originally planned to be at Spinnaker only one year as Philips was planning to release the machine in 1988. That one year turned into four, due to constant delays with the hardware emulation systems and the operating system. I think the launch was closer to 1991." This proved to be one of Philips' biggest mistakes, since the late arrival meant NEC was first on the market with a CD console (PC-Engine CD-ROM 2), and by the time the CD-i was available other CD systems were either already available or soon to be released (Commodore CDTV, Sega CD, and so on). DeSharone spoke further on such problems

Psycho assassin chicks in latex, and your partner-in-crime being shot in the back *Burn:Cycle* was a surreal take on the cyberpunk genre

Both *Ram Raid* and *Atlantis The Last Resort* set precedents. Both FPSs, *Raid* allowed online scoring and *Atlantis* loaded entire levels into memory, allowing the disc to be rep acad w th a music CD

"Unfortunately for Phil ps, as each year passed, CD technology made more inroads to being a standard part of the PC and Mac computers And while the PC was getting more memory and faster processors, Phi ips chose to stay with the original 1987 specification using the 68000 chip. This was the original 68000 found in the first Macintosh computers. It was dreadfu ly slow and severely limited what was possible with the system." So not only was the CD-i late, therefore missing a crucial market entry that may have saved it, the system was also underpowered and overpriced. But Ph lips made further mistakes, resulting in a comedy of errors

Along with being comparatively underpowered, the CD-i had several inherent problems not anticipated by Philips The late Silas Warner of Novalogic (*Super Mario's Wacky Worlds*), in an interview with **www.blackmoonproject.co.uk**, explained that the system should have been easy to work with. "I had just been laid off from Am ga and Atari work at Microprose S nce my previous work had been with the 68000, it wasn't hard to adjust to the cr pp led 68000 used in the CD-i. Like the Amiga, the CD-i had a 'display ist' video structure n which every scan line was specified The software architecture of the CD-i, in contrast, was wonderfully simple and elegant. The operating system was ca led OS9, and had the distinction that every program was relocatable." But Warner also had some surprising truths to reveal "There were bugs and gl tches The scan line interrupt, normally the highest priority interrupt in the system, was overr dden by the joystick This meant the display would jump up and down whenever the joystick was moved. This required quite a bit of ingenuity to overcome, and a method was worked out at the CD-i development conference in the spring of 1992. This kind of 'patch' was an example of the kind of flexible programming that OS9 made possible." Luckily OS9 enabled a solution, but it's shocking that months after the launch developers had to find workarounds for crippled hardware

Meanwhile DeSharone, who headed arguably one of the most technically skilled CD-i teams at Animation Magic, also had problems "There was no hardware sprite technology so all movement of characters required the pushing of pixel data by that 68000 chip There was some hardware scrolling capability, but the video memory was very small. If you look at the scrolling in *Laser Lords*, *Alice In Wonderland*, *Mutant Rampage*, *Link* or *Zelda* you'll see that you can only scroll about 2 or 2 5 screens horizontally This was dictated by the video memory available The remote control was analogue instead of digital and the infrared made it extremely slow and unresponsive The CD drive was single speed (1x) with really abysmal seek times. There was also the issue of the small Non Volatile RAM Card – you had a system that may have been better suited to large RPG or strategy games but couldn't easily save complex game states."

Then Warner elaborated ad-nauseam on his problems, including Philips's gross short-sightedness regarding audio. "The most serious problems were audio. Since the CD-i was based on a CD player, its designers felt CDs should be sufficient for all audio. But the designers forgot to add any method to mix sounds Even a simple mouse click had to be recorded in a studio, according to CD-quality specifications, including $9,000 digitising boards with gold-plated cables, to 16-bit qual ty But then the CD music was interrupted to play the click, for only one track could be played at a time."

The convoluted actions taken to remedy this beggar belief and highlight the kind of problems developers faced. "Once again, the programming 'brain trust' went into action and figured out a massive software package that at least allowed two tracks to be played A software compressor decompressed two audio tracks at once, and averaged them from stereo to mono. Then one was placed on the left channel of the rotating audio buffer and the other on the right channel. Finally the stereo option was turned off, in order to mix the two channels. For all its ingenuity, this programming trick turned out to be the Achille's Heel of the CD-i "

Warner also detailed the first game he did for Novalogic, which not only explains the problem with the new sound technique, but also the kinds of demented pressure Sony was applying. "Novalogic was mainly a contract programming house building games designed by clients Our title *Jigsaw* had been completely designed and specified by Sony. New-age music played while you switched identically shaped pieces of a picture until all were in place. The obstacles thrown in

Online But Out Of Time?

The CD-i may not have been the first console to go online (that title falls to the Famicom) but it did have an impressively ambitious attempt at doing things. Unlike past console attempts which, in hindsight, appear technically limited, the CD-i attempted to bring proper internet browsing to your TV screen. CD-Online launched in the UK in October 1995 with the Internet Kit costing £99 plus an added flat fee of £11 99 per month – in order to work, however, it required the DVC To advertise the new service Philips commissioned a lengthy advert featuring a barman, Dave, enthusing about the service and the ability to go shopping, chat with people check out films, books and so on, plus find love via the online dating service One game, *Ram Raid*, even allowed the downloading of new levels and featured an online scoreboard to compete against A bit like Xbox Live, then. The domain is dormant but still exists at **www.cd-online.co.uk**

PHILIPS CD-i

"A CD-i 2 WAS ON THE DRAWING BOARD AND PHILIPS EVEN COMMISSIONED ARGONAUT TO PRODUCE THE 3D PROCESSOR" DEVIN SHOCKWELL

An advert by Philips. It's witty, maybe even funny, but what the hell is it advertising? No wonder people didn't understand the CD-i

Who would have imagined that *Jigsaw*, and those three rotating sound buffers, could cause so many problems? It was designed by Sony, launching with the system, but people hated it

our way were primarily Sony's ridiculous requirements for quality. For instance, that mouse click. It couldn't be a synthetic beep; it had to be recorded in a recording studio, to 16-bit quality. Also, [all game data] had to be placed on the disk twice. I still have a test disk from Sony, on which nail polish had been placed to obliterate several tracks. The game was required to play perfectly even with this flaw! Two weeks before the opening [we realised] *Jigsaw* would ship with the new machine, despite Sony's QA department continuing to discover new 'bugs.' Up until then, Sony players were the only model on which we could test products. Then Panasonic came out with its companion model and *Jigsaw* wouldn't run. The culprit was that elaborate sound-mixing system. The software decompressor had to load sound data in a precise timing sequence into two rotating sound buffers. But the Panasonic player had three rotating sound buffers, throwing all timing off. Every title that had more than one sound playing produced garble on the players. Two weeks before release, half the supply of CD-i players in the world had to be scrapped and redesigned."

Another gentleman responsible for games, Steve Hayes, formerly of Philips Interactive Media Europe, also spoke on the subject. It turns out Philips's documentation was nearly useless for solving problems. "PIME had commissioned a number of post-production houses to develop CD-i titles. While these were strong on the video and audio production side, many were less adept at solving some of the early technical 'gotchas' that couldn't always be unearthed from simply reading the Green book. Also, there was difficulty in circulating good 'how to' tricks and short cuts." This forced programmers to become binary guerrillas and invent things as they went along, quick-fixing and hot-patching code just to maintain functionality, with Hayes revealing some unorthodox methods. "Most development tools that make a coder's life easy didn't exist. We had to either create them or hunt down something vaguely useful and adaptable by searching online through the arcane academic backwaters of what's now the internet."

But once past such hurdles, what were the games actually like? At first very slow, the majority being pretty uninteresting. Warner recounts the public's reaction to *Jigsaw*, "The premiere came, and CD-i displays were prominently unveiled in prestigious department and electronics stores throughout the nation. Many of them were running *Jigsaw*

Super Mario's Wacky Worlds is another unfinished game. Having played it, Retro Gamer can personally attest to its excellence – a surprisingly authentic *Mario* experience

because nothing else was available. And the public resoundingly ignored them." The system's US launch was in 1991, arriving in the UK March the following year. It wasn't until 1993 that faster and more exciting games arrived, with shoot-'em-ups like *Alien Gate* and *Steel Machine*, plus of course the two brilliant side-scrolling *Link* and *Zelda* games. *Alien Gate* actually started as a demo from SPC Vision, but Philips was so impressed it released it – a five-game contract was also created, which eventually led to one of the CD-i's crowning glories, *The Apprentice*.

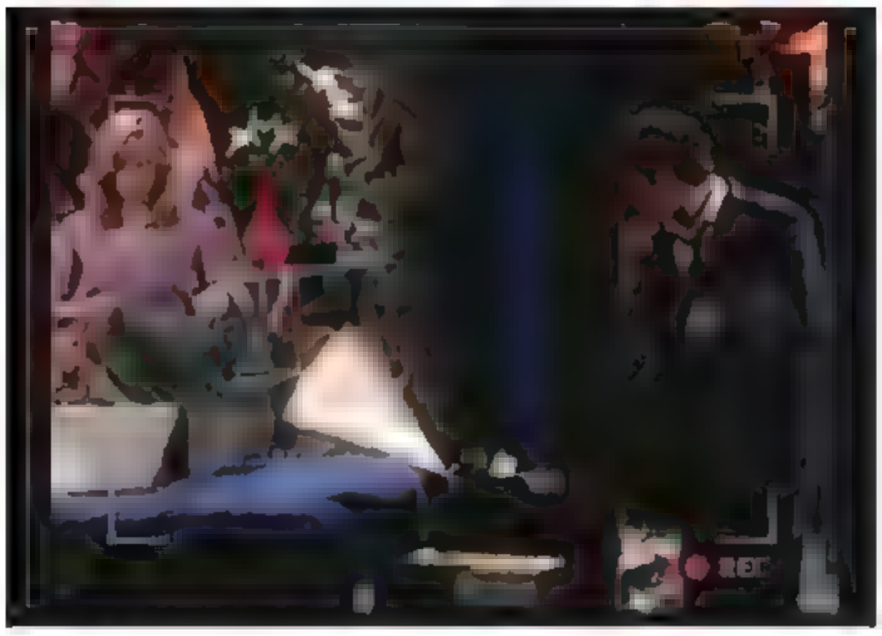
But why did it take so long to push the gaming side of the machine? DeSharone was hesitant about speaking too openly, but revealed some of the things at Philips that eventually led to the CD-i's downfall. "It was just obviously not a game system and Philips was actually very clear in telling us that it didn't believe the market for this device was games. There was a subtle hostility towards games that I noticed from the upper echelon of execs at AIM [Philips' CD-i software publishing arm]. Philips thought that people would buy the machine for home educational purposes." During the conversation, DeSharone explained that most executives had no background in gaming, and so didn't really understand the market. He went on, "This all changed after the launch of the CD-i, because the only titles that actually sold were the game titles. I'm not sure how familiar you are with the original CD-i launch titles, but games like *Treasures Of The Smithsonian* had multi million-dollar budgets while games like *Laser Lords* were closer to $700,000."

Quite apparently Philips didn't understand its own machine. It didn't understand the capabilities, and nor did it understand what consumers would want from such high-priced piece of new technology. For this reason it misfired horribly. The product's entire marketing strategy lacked focus, weighed down by a high retail price, and consumers became confused as to what they were buying. Legend has it, from inside sources at Philips who cannot be named due to non-disclosure contracts, that overall the company spent $1 billion on the CD-i. While seemingly a massive figure, when you consider Philips was paying for hardware development and manufacturing, exorbitantly expensive software development (under the failed Philips Media brand), advertising and publicity not to mention the creation of several magazines, the cost is not surprising. Sony spent twice as much getting the

Issue 18 of *CDi* magazine featured a review and cover of *Discworld*, which was never officially released.

Undoubtedly Sony learned valuable lessons working on CD-i, later helping shape its strategy for the PlayStation. Above is the portable IVD-V11 model, launched in 1993 from £1,299

Sit in a hotel room and spy on some rich and powerful freaks. *Voyeur* may have had an unnecessarily seedy reputation, but it proved rather entertaining



A sequel, *Voyeur II*, was completed but never released. Major CD-i collectors have acquired the first disc, but the second is still M.I.A

original PlayStation off the ground, showing just how painful this stage of disc media was.

The magazine point is interesting, since it's believed Philips funded the majority of CD-i magazines but didn't want anyone to know this. CD- archivist Devin Shockwell explains more: "The earliest attempt at a CD-i publication was the inspirationally titled *CDi* which was terrible, reading like a catalogue. The most important was the UK based *CDi Magazine*, which ran for 20 issues and took an in-depth look at VCD, music CD, edutainment and so on. *CDi* ran for 20 issues and its USA sister publication named after it ran for five issues taking articles directly from the UK publication. The other magazines named *CD-i* are completely unrelated, the most respected was the Netherland CD-i magazine, which lived a long life. Spain, France and the Netherlands all had unique publications. The latter is worth a special mention as it stayed the complete course of CD-i from birth to death. Finally, *CD-i World* was a professional newspaper-style journal publication aimed at developers."

When examining the most technically impressive games to gauge the system's abilities, to average consumers it came across as less powerful but more expensive than even a Mega Drive, with the added problem of originally only having two dedicated action buttons (fewer than a NES, though later pads added more) – to give this impression in 1992, coupled with unfocused marketing, was a death sentence. While outside Holland the distribution is regarded as poor (especially so in the United States).

Which is a shame, because in many ways it was a pioneer that deserved to fair better. The CD-i had a working internet browser years before the Dreamcast. More importantly, it was a region-free and open system to develop for – a stark contrast to rival Japanese consoles, which required expensive licences to create games on. It was also a console with integrated multimedia capabilities years before the PS2 was praised for playing DVD films. The CD-i's Video CD playback is actually very good, and with third-world countries still mass-producing VCDs (of recent films) at piracy-low prices, it's a handy system to own. But only if it has a Digital Video Card which was another thing that put people off – no one wants to buy expensive extras just to attain basic functionality. The DVC was always planned but they hadn't finalised the format, which is why it was available as a costly upgrade after launch. FMV games obviously wouldn't run without it, while later titles (like *Mutant Rampage*) required the extra memory to function. The system was practically crippled until you bought a DVC.

But for the eventual owners there wasn't anything intrinsically wrong with the machine .. once it had a DVC installed and finally started seeing decent software. Rather it was what you received for the high price compared to rival game systems that was the problem. As mentioned by developers, the biggest hits were not the educational or multimedia titles but games. That was what the public wanted, but when gamers and parents were looking at prospective machines in the early-Nineties, CD-i didn't stand a chance against technologically superior and cheaper competitors. Although, Philips actually considered releasing follow-up hardware. Shockwell, who has an army of inside contacts, revealed: "I know that a CD-i 2 was on the drawing board and Philips even commissioned Argonaut [the Super FX Chip guys] to produce the 3D processor. It's said it would have outstripped the power of PlayStation, but at a price."

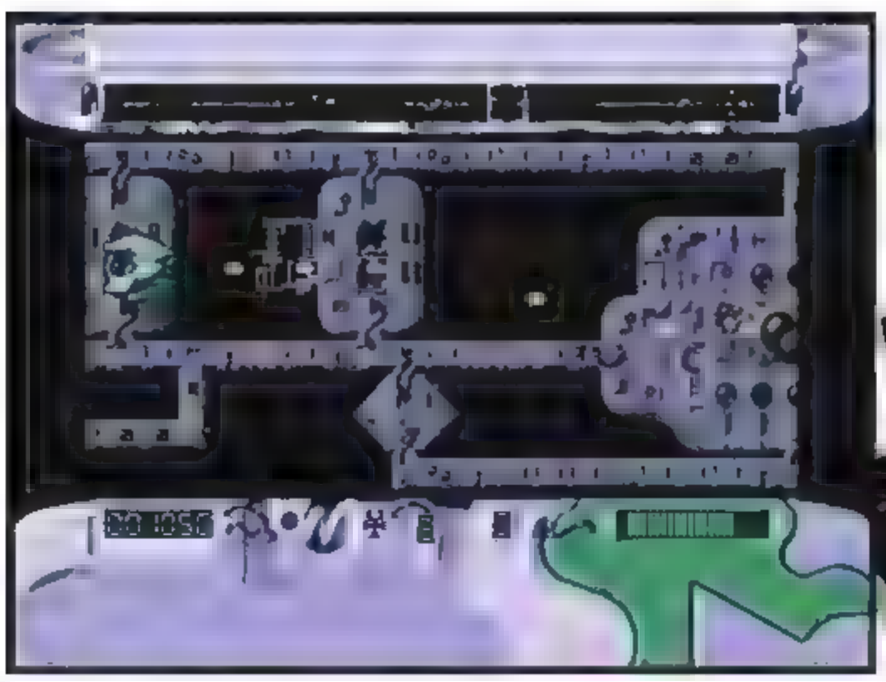
The last games officially released through Philips Media were the impressive *Atlantis* and *Zenith*. Other games did still appear: *The Lost Ride* was released in 1998 while *Solar Crusade* came out in 1999. Fan-promoted releases include *Plunderball* and *Jack Sprite Vs The Crimson Ghost* (**oldergames.com**) among others.

With rock-bottom prices, VCD movie playback, easy availability on eBay, countless online resources – including reviews with the benefit of hindsight – the ability to easily copy games with a CD burner and to reiterate, really low prices, now is a wonderful time to try the CD-i. Buy one with some of its best games, a DVC, decent pad and lightgun, then sit back and indulge in the fun titles that few have taken the time to enjoy.

Author Of The CD-i Emulator Speaks!

"I'm a former CD-i developer (no names) and saw this as a cool hobby project. When I first started programming in December 2000 didn't foresee the amount of work the project would take. I dropped it for almost a year – this happened a number of times. But I always came back to the project, managing to get the first CD-i title to play somewhere around Christmas 2004. After that I have pretty much worked on it steadily. A secondary reason was my great love for the CD-i platform, and the consequent desire to see it live on beyond the lifetime of the discs and players. So far, most CD-i hardware has held up admirably, but at some point it's going fail, and what would happen to all those discs then? An emulator is a beautiful solution to the problem and also really the only worthy one. Hardware dies, software lives forever (through emulation)."

All in-game screens and interview answers courtesy of **www.blackmoonproject.co.uk**, with the exception of the Dale DeSharone segments. Special thanks to Devin Shockwell for providing the hardware to photograph.



Commodore 64 fans will want to check out *Steel Machine*. A Undium clone on CD-i is definitely something to get excited about

PERFECT TEN GAMES

Clever wags will no doubt suggest that a CD-i top ten is rather pointless as it was home to a load of worthless crap. Luckily, we tend to give clever wags a wide berth and are more than happy to dig through the CD-i's rather extensive back catalogue and prove them wrong. Just remember, it's opinion only and no harm is ever meant.

01

THE APPRENTICE

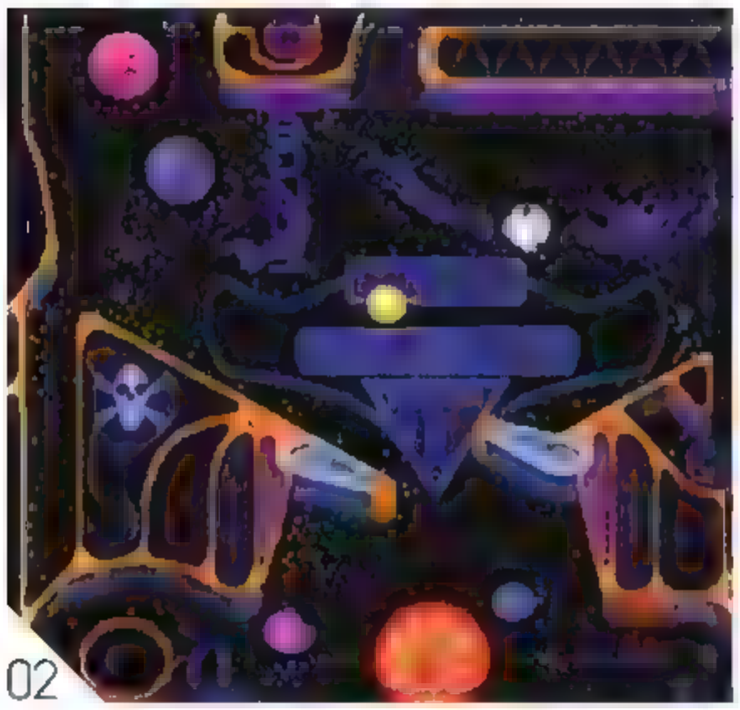
- **RELEASED:** [illegible]
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** SPECTRUM/THE VISION FACTORY
- **BY THE SAME DEVELOPER:** ALEXANDRA

01 No top ten is complete without a decent platform game – thankfully CD-i doesn't disappoint, offering *The Apprentice* as an instant classic. It's hard not to fall in love with the cute cartoon animations as you control Marvin (the wizard's apprentice) through six unique stages. Beautifully animated cut-scenes, bonus levels and boss encounters only add to an already lavish production. If you were lucky enough to own the Digital Video Cartridge upgrade, the game featured improved sound effects – creating a rich diverse audiovisual treat. They even threw in a hidden mini-game of *Space Invaders* affectionately called *Marvinvaders*, not to mention those Game Over screens.

PLUNDERBALL

- **RELEASED:** 2002
- **PUBLISHED BY:** OLDERGAMES
- **CREATED BY:** ISG PRODUCTIONS
- **BY THE SAME DEVELOPER:** VIDEO SPEEDWAY

02 It's pinball, Jim, but not as we know it! If we described it as pinball fused with *Wing Commander* you'd have a rough idea of what to expect. Alongside typical pinball elements such as drop targets, bumpers and alleys, *Plunderball* also features video lock wells. Once activated these show brief video clips of the story line with hints on how to progress through the table. This serves as nice decoration but what really makes this game shine is the solid and thoroughly playable pinball physics. It's even more staggering to learn that this was saved from oblivion thanks to the retro publisher Oldergames, which released three CD-i titles alongside *Plunderball* in 2002.


02

PAC-PANIC

- **RELEASED:** 199[illegible]
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** NAMCO [illegible] CONVERTED BY PHILIPS ADVANCED DEVELOPMENT AND SUPPORT
- **BY THE SAME DEVELOPER:** ANIMATION [illegible] PHILIPS ADVANCED DEVELOPMENT AND SUPPORT

03 What is a conversion doing in this section, we hear you cry? It's simply the best version we've played, lovingly re-created with a glorious 256-colour palette. With standard, puzzle and two-player modes, there's plenty of replay value here. Although many were left bemused by the animated menu system, which looked like regional savings to us, this shouldn't detract from the superb conversion as the team from ADS show how a conversion should be done.

HOTEL MARIO

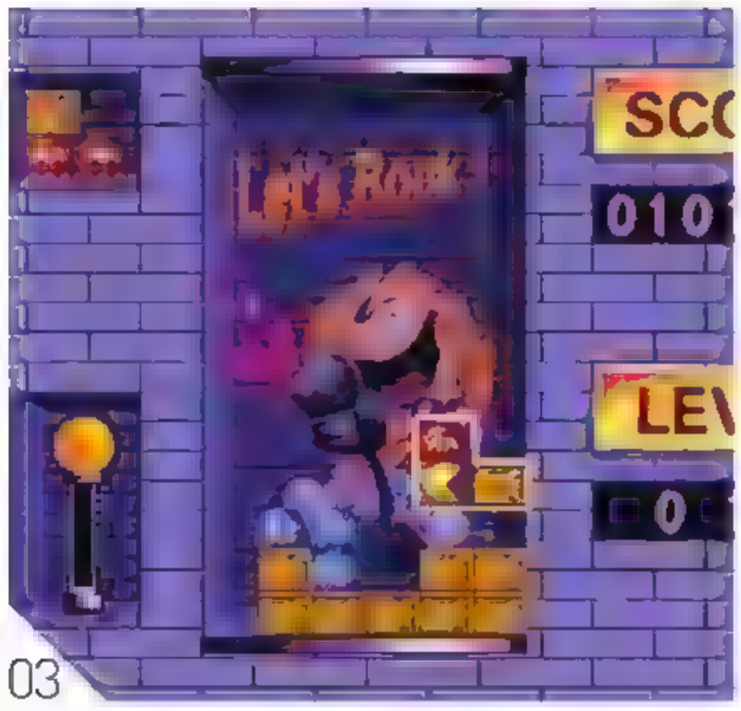
- **RELEASED:** 199[illegible]
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** FANTASY FACTORY
- **BY THE SAME DEVELOPER:** NAME THAT TUNE

04 Forget what you've read or seen about *Hotel Mario*. This is a brilliant multi-tiered platform romp, which feels like the old-school style of gameplay from Mario's first appearance in *Donkey Kong*. But instead of jumping barrels and climbing ladders, Mario is thrust into various themed hotels where traversing elevators and shutting all the doors is key to success. With Koopas, Goombas and Wrigglers to contend with, this is no easy challenge. Simple, effective gameplay and surely that's what a *Mario* game is all about. Terrific use of the Nintendo licence and well worth a second chance.

BRAIN DEAD 13

- **RELEASED:** 1997
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** READYSOFT CONVERTED BY INTERNATIONAL CREATIVE DIGITAL IMAGE
- **BY THE SAME DEVELOPER:** SEGA FACE CONVERSION BY INTERNATIONAL CREATIVE DIGITAL IMAGE

05 To those bored of the Full Motion Video adventure created by *Dragon's Lair* and its ilk, *Brain Dead 13* is a refreshing alternative. An FMV game with infinite lives and infinite ways to die. It's just as weird with a half-human half-pet called Fritz and his assortment of weapons baying for blood. With multiple paths there's plenty to explore offering a furious action adventure game. All the splendour of the enhanced Digital Video from CD-i makes this a real treat.



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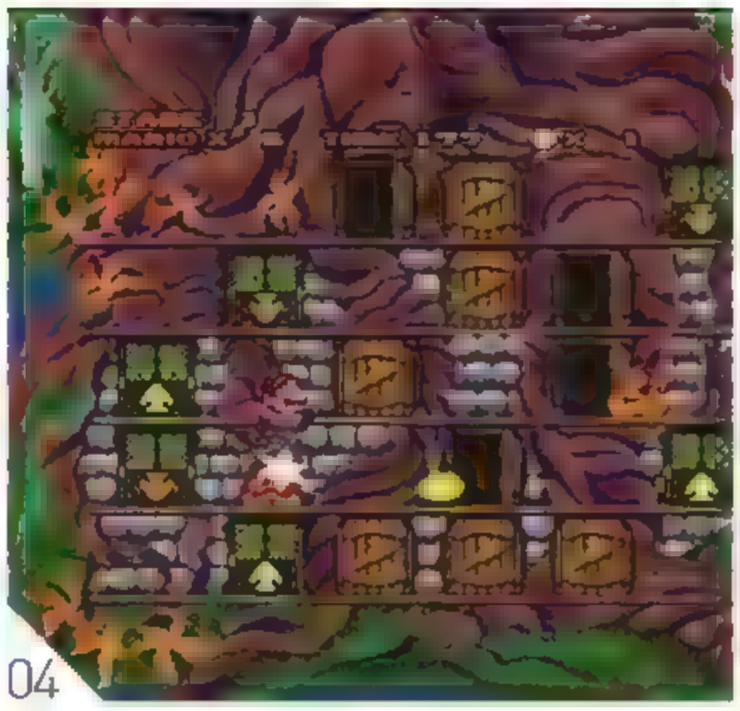
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BURN: CYCLE

- **RELEASED:** 1994
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** TRIPMEDIA
- **BY THE SAME DEVELOPER:** THE VIRTUAL NIGHTCLUB

06 The mere mention of CD-i gaming to most retro rebates should bring *Burn: Cycle* to mind. It was the poster child of Philips Media Games and its debut on CD-i provided the system a much-needed boost. Fully digitised action sequences set in a surreal 3D cyberpunk environment coupled with an intriguing story line, make this an enduring adventure. Filled with puzzles, shooting sections and character interaction there was plenty of variation. The European release came in an embossed lime green case with an excellent soundtrack CD. It appealed to a core gaming demographic that CD-i had never reached before.

RAM RAID

- **RELEASED:** 1996
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** PHILIPS ADVANCED DEVELOPMENT AND SUPPORT/ PHILIPS RESEARCH LABORATORIES
- **BY THE SAME DEVELOPER:** ATLANTIS: THE LAST RESORT

07 Criticised for lacking processing power, it was astonishing to find the technically demanding genre of FPSs on CD-i. But that's what the creative force of Philips ADS and PRL pulled off. The game was called *Ram Raid*. They not only developed an FPS, but also integrated online capabilities with a competitive scoreboard, and downloadable content. Both components were to provide a killer application for the CD-online service. Best of all, it was free. At least to CD online subscribers. The game was also distributed as a covermount on *CDi* magazine for all to enjoy.

MUTANT RAMPAGE: BODYSLAM

- **RELEASED:** 1994
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** ANIMATION MAGIC
- **BY THE SAME DEVELOPER:** SARGON CHESS, ZELDA WOOS

08 There's one thing you can be sure of: CD-i games never follow the typical blue print of a genre. *Mutant Rampage* might look like a *Double Dragon* clone, but it's a far more imaginative brawler. It's set in a post-apocalyptic vision of Earth, where cybernetic technology has advanced and blurred the line between man and machine. This vision and art direction is highly polished, complemented by a superb soundtrack. Digital video animation interludes courtesy of the *Bodyslam* host L. Wolf Jam serve to taunt and reward, creating a vibrant world. Omission of a two-player mode is the only missed opportunity.

09

SECRET MISSION

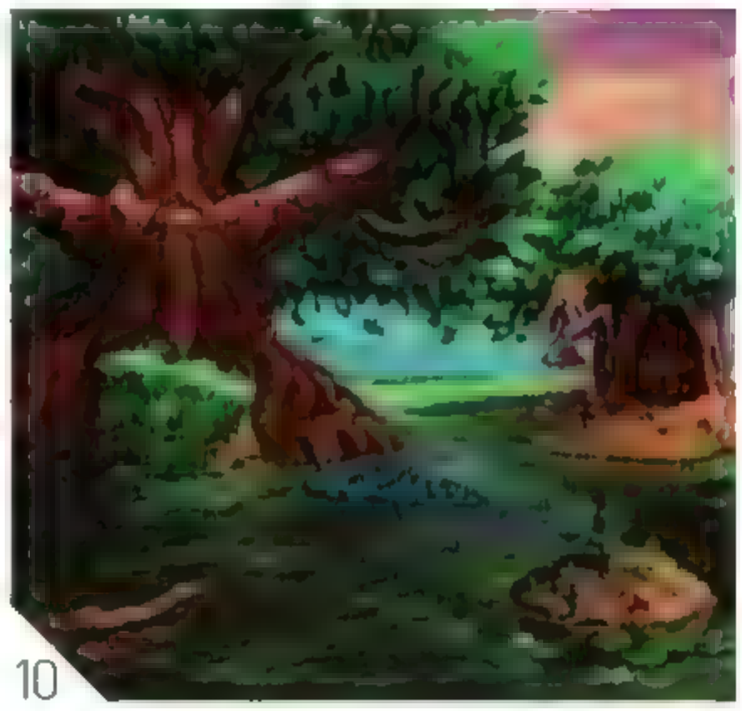
- **RELEASED:** 1996
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** MICROIDS
- **BY THE SAME DEVELOPER:** ULTIMATE DOMAIN

09 We could have listed *The 7th Guest*, but it's this charming adventure game that really deserves your attention. It's the Fifties and you find yourself in the Indo-Chinese country of Opalia, a hot spot during the Cold War. Conveniently awakening in a hotel with amnesia (the crux of many an adventure) you soon become embroiled within *Secret Mission's* political intrigue and mystery. Exploring the detailed world of *Secret Mission* is a delight with some spectacular, vivid animations breathing life into the varied locations. Although navigating this world proves a little cumbersome at first, this is a small price to pay for the finely honed, clutter-free user interface. This is one spy thriller worth further investigation.

LINK: FACES OF EVIL/ ZELDA: THE WIND OF GAMELON

- **RELEASED:** 1993
- **PUBLISHED BY:** PHILIPS MEDIA
- **CREATED BY:** SPINNAKER SOFTWARE
- **BY THE SAME DEVELOPER:** LASER LORDS, MUTANT RAMPAGE

10 The two sidescrolling games, *Link: The Faces Of Evil* and *Zelda: The Wand Of Gamelon*, are astoundingly good. Ignore the lies perpetuated about these Nintendo-licensed adventures as, although they aren't strictly canonical, the sense of exploration and gradual empowerment (via Metroidvania-style item acquisition) is exhilarating. The Russian-made cinemas may have been low quality, but the gameplay designs, music, and Monet-esque background art were all superb. Give them another chance and play with an open mind, since there are some great games trying to break out. Oh, and stay away from the third, top-down *Zelda's Adventure* title – now, that was dire.



10

MEGA

MANY GAMERS ASSOCIATE THE NAME 'MEGA-CD' WITH 'ABJECT FAILURE' WHILE OTHERS BELIEVE THE PLATFORM'S ONLY FAILING WAS TO BRING CD-ROM TECHNOLOGY TO THE PARTY A GENERATION TOO SOON. **DAMIEN MCFERRAN** CELEBRATES A TIME WHEN SEGA WASN'T AFRAID TO TAKE MASSIVE RISKS IN THE HARDWARE ARENA

INSTANT EXPERT

- **Some later Mega** CD games were coded to make use of the additional power of the ill-fated 32X add-on – when fully assembled, this hardware setup was quite a beast and required three different power supplies.
- **The Mega-CD** was also able to play the CD-G+, a format used mainly to display karaoke lyrics on screen – a karaoke add-on was also produced for the system.
- **Digital Picture's** *Sewer Shark* and *Night Trap* were going to be released on the Super Nintendo CD-ROM system – when this was cancelled, a deal was signed to bring them to Mega-CD.
- **All Mega-CD** games carry a region lockout system. This can be circumvented by chipping the machine or purchasing a converter cartridge (such as Datel's CDX) that slots into the Mega Drive's cartridge port.
- **The Ricoh RF5C164** sound chip is one of the machine's greatest assets and grants an additional eight channels of sound, all of which can be used to play samples.
- **Game saves were** recorded to the Mega CD's internal RAM; it was also possible to purchase a RAM cartridge that would offer even more space. Some games – such as *Shining Force* CD – required so much memory to save a game that these carts were almost essential.
- **The Mega Drive** and Mega-CD both feature the same 16-bit Motorola 68000 CPU, but the one present in the Mega-CD has a clock speed almost twice as fast.
- **Notable 'pack in' games** included *Road Avenger*, *Sol-Feace*, *Cobra Command* and *Sega Arcade Classics*, which featured several popular Mega Drive games such as *Golden Axe* and *Revenge Of Shinobi*.
- **Titles such as** *Ernest Evans* and *Sol-Feace* were later released on the Mega Drive, with only the CD audio and cut-scenes missing.
- **Rapper-turned-thespian** Mark Wahlberg can count himself as a Mega-CD star – he appeared in *Marky Mark: Make My Video*, which allowed players to edit three of the Funky Bunch's songs.

They say that pride comes before a fall but as the first broadsides of the 16-bit war were unleashed at the dawn of the Nineties, Sega certainly had plenty to feel proud about. The launch of the Mega Drive (rebranded 'Genesis' in the US) had transformed the company from plucky also-ran to industry leader virtually overnight. The hitherto unchallenged dominance of Nintendo's 8-bit NES was broken and by the time 1992 arrived, Sega was able to call 50 per cent of the American home console market its own.

It was during this exciting period in Sega's history that Scot Bayless joined the company. He vividly remembers what it was like to work for Sega at its peak: "It was exhilarating. We were running about 50 per cent on sheer bravado. One of the great things about Sega in those days was the company's willingness to just try stuff. We had a T-shirt made with the slogan 'This may not work, but what the hell' – that was pretty much our attitude." Such joyous ebullience imbued Sega with the confidence to experiment with new technology – and in this case, it was the medium of CD-ROM that intrigued the Japanese firm.

Coming straight from Spectrum Holobyte (where he worked on the epic air combat flight simulator *Falcon 3.0*), Bayless took the position of technical director at Sega of America and was ultimately put in charge of overseeing the US debut of Sega's latest piece of hardware: the Mega-CD. It wasn't the first company to embrace the possibilities of the shiny plastic disc – rival NEC had produced its own CD-ROM add-on for the 8-bit PC-Engine in 1988 – but with the Sega brand in the ascendancy and the war between the Mega Drive and SNES about to go global, all eyes were on this latest system and the new era of technological brilliance it was about to usher in. "Sega of Japan was already well along the road and the first development kits showed up not long after I did," reveals Bayless. "My first responsibility was to help get the first demos ready for the big announcement event in New York."

The machine had been conceived by Sega's top hardware team in Japan, but so fearful was the company of internal leaks that it had been intentionally slow to provide Sega of America with vital technical information relating to the project. This clandestine attitude meant that Bayless and his team had to work overtime to get things ready for the US launch, which was scheduled for 1992. "At that point there were virtually no software tools – only barely functional dev kits and incomplete documents that were being translated more slowly than they were being revised," he remembers. "There was one stretch when I spent four continuous days in the building – as in didn't actually leave the premises. I lived off vending machines and coffee while I slogged through a bunch of systems code, trying to get the demos to function reliably."

Because the hardware development was being done exclusively by Sega's Japanese team, Bayless decided early on that it was vital that he familiarise himself with the new machine. "One of the first things I did was to go to Tokyo and get up to speed on the hardware," he recalls. With the relevant tools in place, Bayless and his US team were able to start tinkering around with the console, and it didn't take long for potential problems to arise. "The big headline was that there was a second CPU with its own memory – that was the good news," he says. "The bad news was that the data path between the

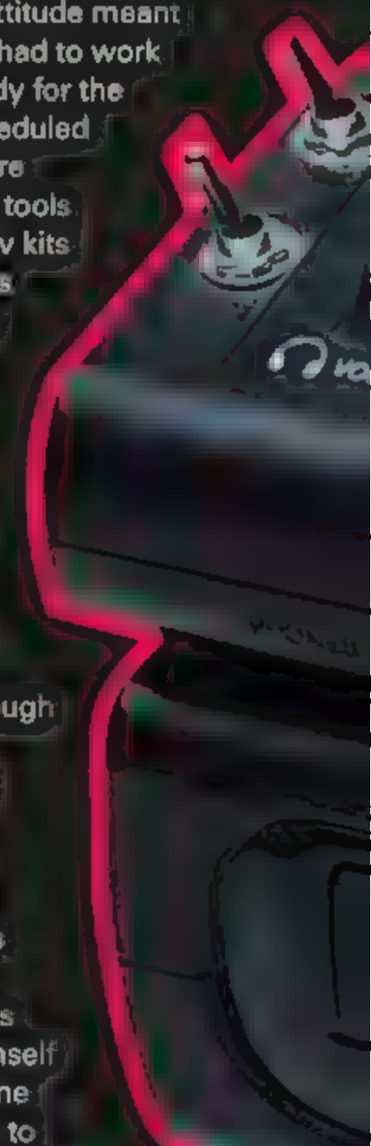
Year released: 1991 (Japan), 1992 (US), 1993 (UK)

Original price: ¥49,800 (Japan), $300 (US), £270 (UK)

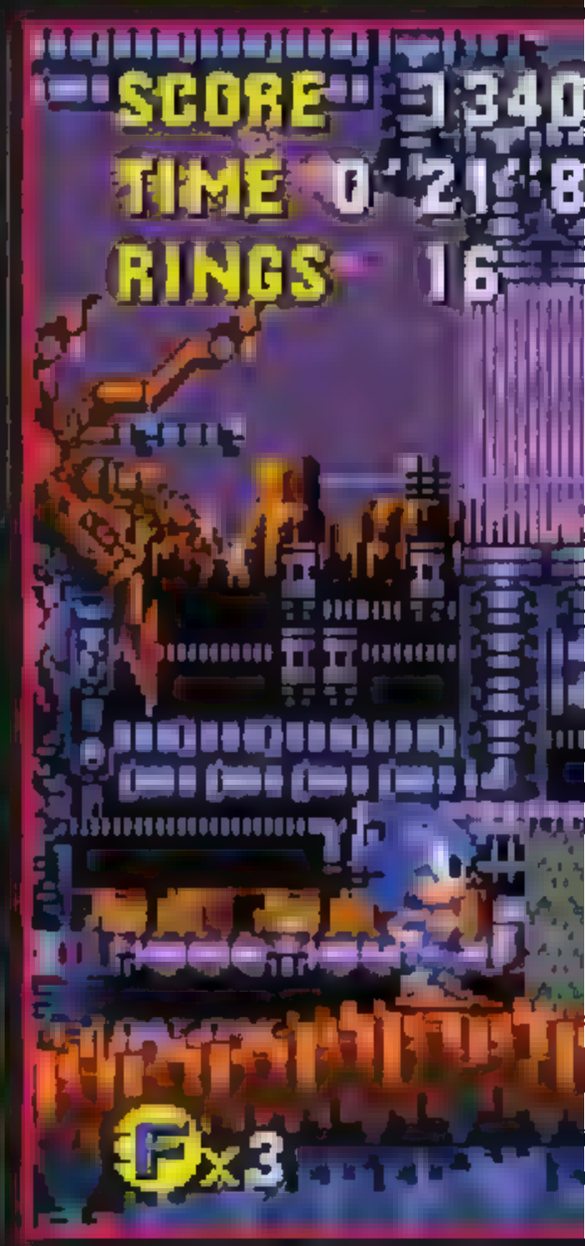
Buy it now for: £15+

Associated magazines: Megatech, Mean Machines Sega, Sega Power, Sega Pro, Mega

Why the Mega-CD was great:
For many gamers it was their first glimpse of the raw potential offered by the CD-ROM format, and while it wasn't the success that Sega might have hoped for, you can't deny that the Mega-CD was privy to some wonderful games. Plus the 'Mark 1' Mega Drive and Mega-CD combi is one of the sexiest hardware setups in the history of consoles.



MEGA CD



COMMUNITY MEGA-CD SITES TO WATCH

PAL Sega Mega-CD Library

If you're thinking of collecting every single PAL Mega-CD release then this site is an essential resource. It contains an exhaustive collection of Mega-CD info, including details about games that never made it and how to emulate the Mega-CD on your PC.

SegaBase

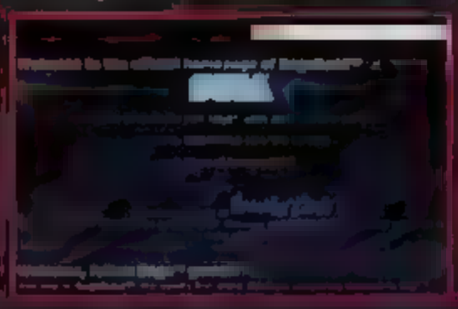
Although it's not specifically aimed at covering the Mega-CD, SegaBase is one of the longest running Sega resources on the net and is home to an excellent piece on the history of the Mega-CD.

Sega-16

Another long-running Sega fan site, Sega-16 is incredibly professional and a joy to navigate. It houses loads of Mega-CD reviews as well as some intriguing features regarding Sega's history. It's all too easy to get hopelessly lost in this excellent site.

Sega Memories

If your rose-tinted specs have a pronounced 'blue' hue to them then this site will float your boat. Again, it's not expressly aimed at covering the Mega-CD, but the sheer volume of Sega nostalgia is guaranteed to strike a chord with fans of the machine.



Mega Drive and the Mega-CD was very limited. What really stood out was the machine's ability to store (for that time) ridiculous amounts of data. The real challenge was figuring out what to do with all that storage. Given the tools of the time, the human cost of building that much content was prohibitive, so people started looking at other possibilities. Probably the most promising element of the hardware was the sound system; it hugely enhanced the sound capabilities of the system of the Mega Drive. But, short of just playing back Red Book audio, nothing really interesting got done with that lovely hardware."

Of course, Bayless couldn't go public with his concerns; Nintendo was gearing up for the launch of the Super Nintendo and as a result Sega was putting a lot of effort into making the Mega-CD a success. However, even when he tried to talk up the power of the console, it didn't always work out as expected. Take the infamous 'Blast Processing' boast, for example. "Sadly I have to take responsibility for that ghastly phrase," admits Bayless with a grimace. "One of our programmers called Marty Franz discovered that you could do this nifty trick by hooking the scan line interrupt and firing off a Direct Memory Access at just the right time. The result was that you could effectively jam data onto the graphics chip while the scan line was being drawn, which meant you could drive the Digital-to-Analogue Convertors with 8 bits per pixel. Assuming you could get the timing just right, you could effectively draw 256-colour static images. There were all kinds of subtleties to the timing and the trick didn't work reliably on all iterations of the hardware, but you could do it and it was cool as heck. So during the run-up to the Western launch of Mega-CD the PR guys interviewed me about what made the platform interesting from a technical standpoint and somewhere in there I mentioned the fact that you could just 'blast data into the DACs'. They loved the word 'blast' and the next thing I knew 'Blast Processing' was born."

Tinkering around with new technology was undeniably fun, but not having any input into the actual development of the machine was frustrating for Bayless and his team at Sega of America. However, as fate would have it, they were able to pitch in with critical assistance from time to time. "There was one technical issue that we did a pretty good job of coping with before it got onto consumers' radar," remembers Bayless. "The CD drive Sega of Japan chose was, predictably, an inexpensive single-speed consumer CD drive. What nobody stopped to think about was how that drive would get used by those early FMV games. I got this frantic call one day from the quality-assurance guys: they were using retail Mega-CDs – the same ones queuing up to be sold to consumers – for final QA, and they were suddenly experiencing an insane hardware failure rate. Units were burning up in droves. In fact, a few of them had literally caught fire as they died. We were in the big push towards launch and the whole place was in a panic because QA was out of hardware on which to test games. It was like an episode of *House*; the patient was doomed but nobody could figure out why. About all we knew was that the systems started flaming out when the FMV-based titles were being tested by QA. All of those games used some form of multi-stream video technique, which meant they were constantly seeking the read head in the

» *Sonic CD* was easily the Mega-CD's most successful platformer. It still sells for around the £25 mark

drive. What finally tipped me off was an obscure manufacturer's specification for the CD drive. It was rated for a five per cent duty cycle, which means that they were expecting that no more than five per cent of the time would the drive be seeking from one track to another. It was built for people who wanted to play music CDs, and of course you rarely seek between tracks more than once every few minutes, so five per cent was way more than they'd ever expected people to need. What nobody anticipated was a multi-stream FMV videogame seeking 75 per cent of the time or more. We were literally cooking the motors that moved the heads." Bayless had identified the problem in the nick of time and ultimately saved Sega from suffering a potentially catastrophic PR blunder.

Despite these setbacks, the allure of CD-ROM technology – coupled with Sega's recently elevated status within the videogame industry – meant that hype for the Mega-CD grew exponentially as the launch drew ever closer. As a result, Bayless found himself receiving phone calls from somewhat unexpected quarters. "I remember I was sitting in my office one day tinkering with some low-level code when the phone rang," he recalls. "This sexy female voice said 'Is this Scot Bayless?' I said 'Yes', and she replied, 'This is David Bowie's office. Can you please hold?' It turned out it was Bowie's manager, a very cool guy named Bob Goodale. Bowie was completely jazzed about the potential of Mega-CD as a window for music into games." The artist formerly known as The Thin White Duke wasn't the only musician to take interest in the aural capabilities of the Sega's new baby. "I had the bizarre meeting with Michael Jackson around the same time," Bayless remembers. "He'd already signed the *Moonwalker* deal with Sega and they were touring him around the Redwood City studio. I spent about half an hour showing him all kinds of techie stuff we were doing and not once did he ever comment or even make eye contact; he just kind of stood there with about 15 of his minions hovering around him. When we finished there we walked him over to the sound studio, which was just down the hall. Suddenly there was this new person in the room. It was uncanny. Jackson came to life like someone had flipped a switch. It was obvious that the only thing he was excited about was the music."

The Japanese launch of the Mega-CD took place in December 1991. Units flew off the shelves despite the high

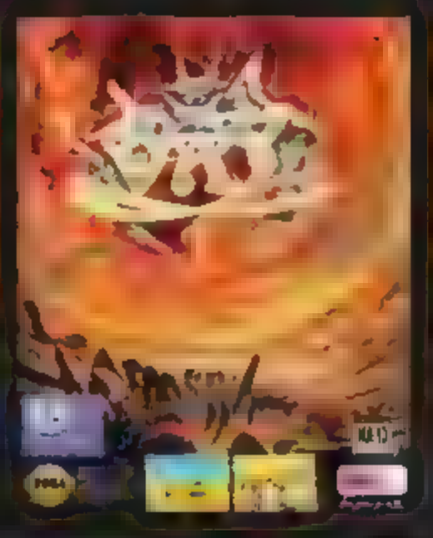
"A few units had caught fire as they died"

SCOTT BAYLESS ON INITIAL PROBLEMS

retail price of ¥49,800. However, the relatively small installed base of the Mega Drive in that region meant that sales soon dipped. Sega knew that the US launch was far more important, given the strength of the Genesis. It took place almost a year later (with the machine being re-christened 'Sega-CD') and although the public was ravenous for this new add-on, production issues meant that a paltry 50,000 units were made available to American retailers. Like Japan, the price was bordering on the prohibitive, but Sega's lofty standing Stateside helped the company quickly sell through what limited stock it had. By the time 1992 drew to a close, 200,000 units had found their way into US gamers' homes. Likewise, 60,000 of the 70,000 machines made available for the UK release the following spring were snapped up before August. It was a positive start, but it wasn't to last.

With the Super NES and Genesis/Mega Drive locked in deadly combat, Sega of America decided to brandish the Mega-CD as a unique weapon in the

» SIMS's *Vay* was picked up for Western release by Working Designs but failed to make the same impact as *Lunar*. It was given a new lease of life on Apple's iPhone.



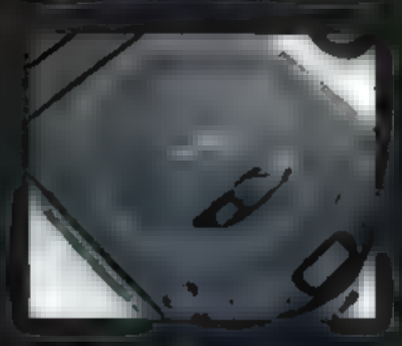
VERSIONS SOME OF THE BEST

Mark II

Introduced in order to bring down costs, the Mk II model is smaller than the original and lacks the motorised CD tray and function lights. It's also a lot less sexy than the previous model, but in its favour it takes up less room and is more reliable.

Wondermega

JVC decided it wanted a bite of the Mega-CD cherry and produced this sleek, all-in-one unit. MIDI and karaoke options were included and the hybrid console was even released Stateside as the X'Eye, although sales were disappointing.



Multi-Mega

The Multi-Mega was little bigger than a portable CD player (it could even be used as such and was powered by two AA batteries for audio playback), but the price was bordering on the insane – UK gamers were expected to shell out £500 for it.

Aiwa CSD-GM1

Perhaps the rarest of all the Mega-CD systems, this Mega Drive/Mega-CD combo looks very much like a traditional boom box. It was produced in limited numbers and only saw distribution in Asia, and as a result it is almost impossible to track down these days.

» Sega focused on promoting the machine's unique FMV-based games, but people soon realised that this gaming revolution was a false dawn of epic proportions.

» Renamed the CDX in the US, the Multi-Mega fused the Mega Drive and Mega-CD into one package, but at £500 in the UK, the pricing was way off.

» *Jurassic Park CD* was a massive undertaking for Sega's newly founded multimedia studio, but with Scot Bayless's guidance, it ended up being pretty decent.

fight against rival Nintendo. A dedicated multimedia studio was established within the company's Californian headquarters at great expense in order to produce top-quality content with which to fill the Mega-CD's shiny discs. "It was a pretty cool place and Sega was willing to invest a lot of money in making it a showpiece," explains Bayless. "The art team was buying SGI Indigo work stations for about $50K per seat, including a copy of Softimage, and the sound studio was a showcase of sparkly new technology. It was impressive."

"Could Guitar Hero have gone on Mega-CD? Hell yes"

The first project assigned to this new studio couldn't have been any more high profile: Sega had secured the *Jurassic Park* licence and was keen to produce a game that demonstrated the Hollywood aspirations of the Mega-CD technology. "The *Jurassic Park* project was a huge priority for Sega, mainly because the association with Steven Spielberg was seen as so important to the PR campaign," recalls Bayless. "Every resource you can imagine was made available. Kathy Kennedy, producer on the film and one of Steven's longest-standing collaborators, went way out of her way to help Sega. She opened doors to everything from Phil Tippet's early stop-motion dinosaur studies to concept art from Stan Winston's team to the CG models used for the film. I remember one day this package arrived from Amblin with a cassette tape inside: the only thing on the tape was take after take of Wayne Knight gurgling out his death rattles from the scene with the Dilophosaurs – they really did give us everything." Despite this intense focus, the project endured a torrid development period. "Fast-forward about six months and I get this phone call at about 2am from our studio head in Tokyo, who was meeting with the Sega of Japan execs," explains Bayless. "He said, 'I just showed Hayao Nakayama [Sega's CEO at the time] a build of *Jurassic Park*. As of right now, you're in charge of the project. Do whatever you have to do to get it back on the rails.' So I rolled up my sleeves, fired some people and eventually shipped a pretty decent game."

As *Jurassic Park* proves, the advent of CD-ROM technology brought with it amazing potential, but there were less welcome side effects, too. "*Jurassic Park* represented the transition from the small budgets and tiny teams of the old days to something much more expensive and demanding of real production discipline," says Bayless. "When you're building a game that has to fit into a few megabytes of ROM, it's not inconceivable that you can keep the whole project in your head. But when you're making something that requires a dozen CG animators, casting calls,

location shoots, ADR and Foley sessions, you can't afford to do anything without a plan. I remember that before I took over the *Jurassic Park* project, a team went romping off to Hawaii where they hired a steadicam and spent a week running around in the jungle taking hours of video of palm trees whizzing by. If you look at the finished game, maybe a total of two minutes of that footage survived the project. The rest was worthless, but it cost maybe $20K to get it."

Cash continued to be poured into Mega-CD development and for a time hardware sales were encouraging, but by this point Nintendo had stepped up its game and the SNES was rapidly asserting itself in the West. The once-insatiable public interest in Sega's CD-based machine began to wane and the previously 'innovative' tech began to appear stale. This process was aided by the fact that one of the console's key selling points – FMV-based gaming – was something of a non-starter. "Sega got way too focused on FMV," admits Bayless. "There was all this talk going around about games converging with movies and Mega-CD being the gateway to that convergence. Suddenly game guys were thinking of themselves as movie makers. But if you really looked at how that translated into an entertainment experience it didn't take a rocket scientist to realise that the things Mega-CD could do well really had very little to do with movies." As the Nineties progressed, rival CD-ROM-based consoles emerged. While they could hardly be classed as tremendous successes themselves, the arrival of the CD-i and 3DO essentially made the Mega-CD technically obsolete. The failure of the machine was followed by the abortive 32X project ("I was present at the inception of 32X and it was literally designed on a cocktail napkin," reveals Bayless with a laugh.) and Sega's previously soaring reputation was left in tatters. To say that Sega's slide began with the release of the Mega-CD is probably doing the machine an injustice, but the high-profile collapse of the format certainly didn't help the company's public image.

It's all too easy to be overly negative when looking back on the Mega-CD, but it's often forgotten that the platform boasted some truly brilliant games. Sega's conversion of Capcom's *Final Fight* was a definite highlight, offering all three characters and a two-player mode (both famously absent from the SNES port), and Working Designs localised Japanese RPGs such as *Lunar: The Silver Star*, *Lunar: Eternal Blue* and *Vay*, making themselves heroes with English-speaking Sega fans in the process. But what does Bayless consider to be the best titles for the system? "For polished gameplay, *Sonic CD*, hands down. For the best soundtrack, *Ecco CD*. For the best use of the platform, I'd have to go with Kojima's *Snatcher*."

Plenty of theories have emerged as to why the Mega-CD failed to make a significant impact on the world of videogames: it's been argued that the price was too high, the inability to function without a Mega Drive limited its sales potential and the technology involved simply wasn't powerful enough to convince people to upgrade. Bayless has his own verdict. "What turned out to be problematic was the content," he explains. "Personally I don't think the platform ever really demonstrated successfully what the value proposition was. A few years later Sony very successfully positioned the PS2 as a competitively priced DVD player that also happened to offer a great gaming experience. The Mega-CD might have been able to play a similar gambit but that was never part of the plan. However, there was a deeper issue: it was fundamentally a solution in search of a problem. I remember sitting in lengthy head-scratching sessions – not just at Sega of America but at Sega of Japan as well – where we were saying to each other, 'Great, so now we have a storage system that's 100 times bigger than before. So what?' Worse still, access to all that data was 100 times *slower*. It was a fundamental paradigm shift with almost no thought given to consequences. I honestly don't think anyone at Sega asked the most important question: 'Why?' There's a rule I developed during my time as an engineer in the military aviation business: never fall in love with your tech. I think that's where Mega-CD went off the rails. The whole company fell in love with the idea without ever really asking how it would affect the videogames you made."

When asked what could have been done to improve the Mega-CD's chances, Bayless recounts an interesting anecdote that is made all the more ironic given the game industry's current preoccupation with music games. "Record producer Todd Rundgren showed up at the studio one day, pitching something that was like the pre-biotic version of *Guitar Hero*," recalls Bayless. "He wasn't all the way there but he was poking in the right direction. Sadly we were all too caught up in our own skewed vision to really understand him or what could have been done with his embryonic ideas. Could *Guitar Hero* have been done on Mega-CD? Hell yes. Would that have transformed the business and saved Mega-CD? Who knows, but I bet it would have made a splash."

LIFE'S A BEACH

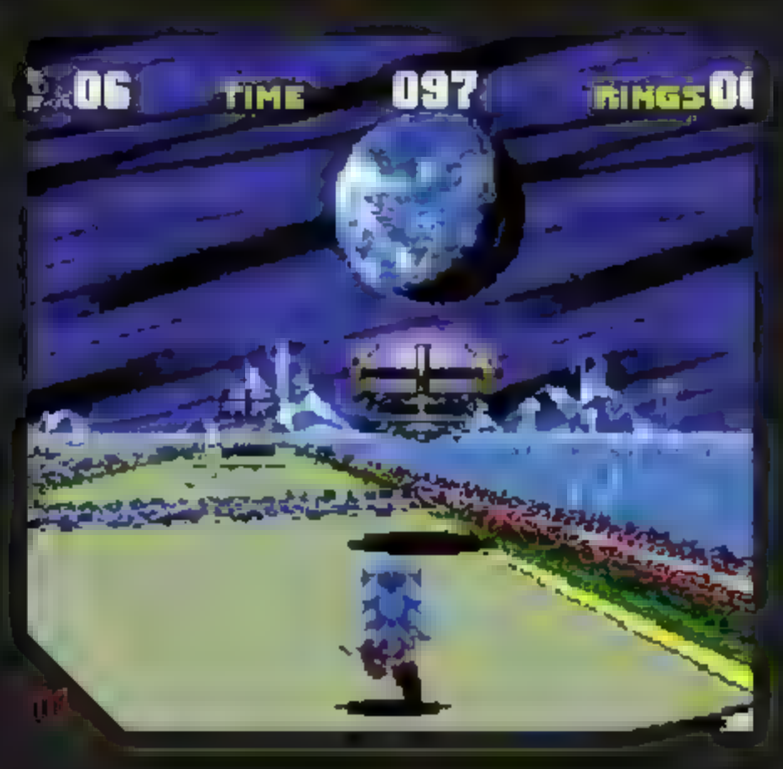
Bayless may have been instrumental behind the scenes at Sega of America, but thanks to a famous American magazine advert, he also became the visible 'face' of the Mega-CD to many gamers. He was featured on a double-page spread where he extolled the virtues of Sega's latest system, and the promotion was printed in leading US magazines such as *GamePro* and *EGM*. "That shot was taken on Stinson Beach just north of San Francisco," recalls Bayless when questioned about his brush with superstardom. "The agency had hired some very high-profile photographer to do the shoot and his vision was to put that wall of TVs in front of the setting sun with me in the foreground. So there we were, on the beach with him on a ladder and the two of us surrounded by a herd of people and gear. The agency guys are there sitting in director's chairs like directors on a movie set. They're moving stuff around, re-stacking the TVs, testing low angles, testing high angles. They're facing the sun. They're facing away from the sun. They're sending people into the city to buy me clothes because the photographer wants to try out new outfits – I changed about six times during the course of the afternoon with people holding up blankets while I stripped. At the end, the only thing I was wearing that was actually mine was my shoes. Meanwhile, there are all these people walking by on the beach asking if I'm someone famous and of course while all this is going on the sun is going down. Finally, they start shooting at like 7pm, but by then the sun was gone. So when it's all done you have a shot they could have done on a sound stage with a couple of buckets full of sand. But, hey, for about seven hours I got to be a movie star."

Night Trap went on to become something of a 'video nasty' and sparked an age rating classification scandal upon its release in the US and Europe.

MEGA-CD

PERFECT TEN GAMES

It's easy to laugh at Sega's Mega-CD, but to do so would be rather foolish. Despite its poor sales and the numerous problems Sega faced, plenty of great games were available for the system. The following examples are the very best, representing a wide range of different genres. Enjoy.



SONIC CD

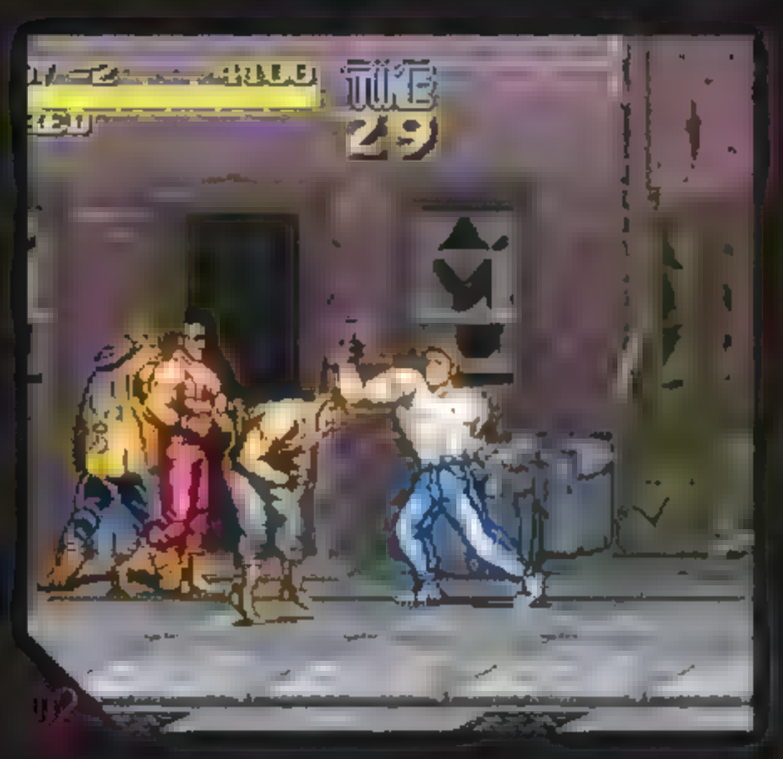
RELEASED: 1993
PUBLISHER: SEGA
CREATED BY: IN-HOUSE
BY THE SAME DEVELOPER: SONIC THE HEDGEHOG 2

01 **Every console needs** that killer app to justify its existence, and *Sonic CD* is as close as you're going to get on the Mega-CD. Regularly cited as one of the best games in the series, this ambitious title made good use of the CD format's storage potential by including gigantic levels, Mode 7 bonus stages and a spectacular soundtrack. The game was made even deeper by the fact it was possible to time-travel forwards and backwards on each level, essentially making the stages three times as big. Interestingly, the US version features a different soundtrack to the Japanese and European variants – although both selections of songs are equally fantastic.

FINAL FIGHT CD

RELEASED: 1993
PUBLISHER: SEGA
CREATED BY: SEGA/CAPCOM
BY THE SAME DEVELOPER: SPIDER-MAN VS THE KINGPIN

02 **When *Final Fight*** (unquestionably the quintessential arcade hit of the late-Eighties) was ported to Nintendo's Super Famicom in 1990, you could practically hear the cries of despair emanating from Sega fans the world over. For a time it seemed as if this Capcom classic would remain exclusive to Nintendo, but thankfully Sega was granted permission to reprogram the game when the Mega-CD came along – it produced what is arguably the best home console conversion (aside from recent emulated ports). *Final Fight CD* is packed with all three characters and all the levels. Needless to say, the previously smug SNES owners were left feeling a little put out.



SHINING FORCE CD

RELEASED: 1994
PUBLISHER: SEGA
CREATED BY: SONIC SOFTWARE PLANNING
BY THE SAME DEVELOPER: SHINING FORCE GAIDEN (GAME GEAR)

03 **The only *Shining Force*** game to make its way onto the Mega-CD is a combined remake of the Game Gear releases *Shining Force Gaiden* and *Shining Force Gaiden 2: Sword Of Hajya*. Visually it's not what you could call a massive improvement when compared to the Mega Drive instalments, but the sheer scope of the challenge is almost overwhelming. So epic was the quest that the Mega-CD's internal save game RAM wasn't enough to contain all the data; the purchase of a separate RAM cart was essential if you wanted to see everything the game had to offer.

LUNAR: THE SILVER STAR

RELEASED: 1992
PUBLISHER: WORKING DESIGNS (US)
CREATED BY: GAME ARTS/STUDIO ALEX
BY THE SAME DEVELOPER: SILPHEED

04 **Game Art's epic** RPG was the closest the Mega-CD ever got to having its own *Final Fantasy*, and following its Japanese release, the console's sales in that region received a boost. Although the in-game graphics were hardly ground-breaking, they were accompanied by some lush anime sequences and an astounding soundtrack by Noriyuki Iwadare. US firm Working Designs picked *Lunar* up for Western localisation and did a fantastic job. The company later returned to the game when it was remade for PSone in 1996.

THUNDERHAWK

RELEASED: 1993
PUBLISHER: CORE DESIGN
CREATED BY: IN-HOUSE
BY THE SAME DEVELOPER: CHUCK ROCK

05 **UK-based Core** Design was a staunch Sega supporter and produced some of the Mega-CD's finest moments. While games such as *Battlecorps* and *BC Racers* pushed the hardware but fell a little short on enjoyment, *Thunderhawk* was a complete success in both regards. Smooth Mode 7 rotation and scaling was coupled effectively with some of the most frantic action ever witnessed on the format, and the game was rightly praised by the press upon release. A 32-bit sequel followed that added full 3D visuals, but the original remains the one we're most fond of.

LUNAR: ETERNAL BLUE

RELEASED: 1994 (JAPAN)
PUBLISHER: WORKING DESIGNS (US)
CREATED BY: GAME ARTS/STUDIO ALEX
BY THE SAME DEVELOPER: TENKA FUBU

06 **Although it doesn't** attract as much praise as its predecessor, *Lunar: Eternal Blue* is just as enjoyable an RPG experience as *The Silver Star*. Also, despite featuring a new cast of protagonists, the gameplay remains largely unchanged. Again, Working Designs took the plunge and brought this Stateside with a great translation. In both Japan and the US, this was one of the final high-profile pieces of software for the ailing platform. By the time of the American launch the system was all but dead.

POPFUL MAIL

RELEASED: 1994
PUBLISHER: WORKING DESIGNS (US)
CREATED BY: FALCOM
BY THE SAME DEVELOPER: YS

07 **Originally produced** for the NEC PC-8801 in 1991, this 2D action-RPG title shares many similarities with the *Wonderboy: Monster World* series. The player takes on the role of a bounty hunter named Mail, but it's possible to switch to other characters. With the excellent English translation and voice work, the Western version of *Popful Mail* is arguably the best of all the conversions and carries a justifiably inflated price tag when it appears on auction sites today. While we're not fans of unscrupulous game re-sellers, *Popful Mail* is unquestionably worth paying through the nose for.

ROBO ALESTE

RELEASED: 1992
PUBLISHER: TENGEN
CREATED BY: COMPILE
BY THE SAME DEVELOPER: SHADOWRUN

08 **A spiritual sequel to** the shockingly brilliant Mega Drive shooter *MUSHA Aleste*, *Robo Aleste* featured the same fixation with large mecha as its predecessor, but was unique because it placed these mechanical killing machines in feudal Japan. Although the gameplay doesn't really present any ideas that couldn't have been achieved on the good old Mega Drive, the music and cut-scenes genuinely elevate the game to a new level of greatness. The game saw release in all three key territories and is in high demand thanks to its overall quality.

SNATCHER

RELEASED: 1994
PUBLISHER: KONAMI
CREATED BY: IN-HOUSE
BY THE SAME DEVELOPER: LETHAL ENFORCERS

09 **It's ironic that** while many developers wrestled in vain with grainy, low-quality FMV to create the ultimate interactive movie, *Metal Gear* creator Hideo Kojima succeeded where others had failed – by using traditional hand-drawn 2D visuals. Showcasing a plot that owes more than little debt to the likes of Hollywood movies such as *Blade Runner* and *The Terminator*, *Snatcher* remains one of Kojima's most beloved works. It was also released on the PC-Engine CD-ROM, PlayStation and Saturn, but the Mega-CD outing remains the only version to be officially translated into English. This makes it a highly sought-after title. You need this game, but your bank balance won't thank you.

KEIO FLYING SQUADRON

RELEASED: 1994
PUBLISHER: JVC/VICTOR
CREATED BY: IN-HOUSE
BY THE SAME DEVELOPER: FUNKY HORROR BAND

10 **The Mega Drive** and Mega-CD were never gifted with a conversion of Konami's deliriously playable *Parodius*, but JVC's *Keio Flying Squadron* is a perfectly acceptable substitute. Putting the player in the high-heeled shoes of a girl dressed in what looks like a Playboy Bunny outfit, *Keio* boasts a similar style of horizontally scrolling wackiness and puts the Mega-CD hardware to good use to produce some excellent cut-scenes and a brilliant CD-quality soundtrack. A Saturn sequel followed in 1996 that added 2D platforming sections, but for pure shooting brilliance the Mega-CD original is where it's at. A relatively late release, the PAL version of *Keio* is common and reasonably priced.

Year released: 1993 (USA)

Original price: $699

Buy it now for: See Price Guide boxout

Associated magazines: 3DO Magazine (Occident), 3DO Magazine (Japan), "3 – For 3DO Enthusiasts" GameFan

Why the 3DO was great... It was a very expensive console, but being a 3DO owner felt special. There was nothing else like it at the time. It was the next generation. Fantastic games like *Star Control 2*, *Super Street Fighter 2 Turbo*, and *Lucienne's Quest* among others, plus exclusives like *Immercenary*, made it shine. There were some truly amazing games released among the dross, but you had to really look for them.

3DO INTERACTIVE MULTIPLAYER

3DO PROMISED US THE FUTURE, WITH INNOVATIONS THAT WERE NEVER COPIED; IT WAS CREATED TO CHANGE THINGS FOR THE BETTER. SADLY, THE IDEALISM AROUND WHICH IT WAS BUILT ENDED UP BEING THE VERY THING THAT DESTROYED IT. JOHN SZCZEPANIAK EXPLAINS THAT 3DO WASN'T PERFECT, BUT IT SURE AS HELL HAD ITS MOMENTS

The early-Nineties were tough for the industry. Some even describe the era as a second crash, with plenty of money lost on unsuccessful ventures. Several firms brought out new hardware trying to steal the crown from Nintendo and Sega. The Atari Jaguar/CD, Bandai Pippin and Playdia, Fujitsu Marty, Amiga CD32 and of course the 3DO, were all regarded as failures. But in some cases this judgement is unfair. The 3DO had great potential – it introduced many revolutionary features and deserved to fare better.

TRIP HAWKINS, THE MAN BEHIND THE 3DO

Hawkins had enjoyed a long, successful, and respected career in gaming, which boded well for any new hardware ventures – he was after all the founder of publishing giant Electronic Arts. It's worth noting this was when they actually published games worth caring about, from *M.U.L.E.* in the early days through to many Mega Drive favourites.

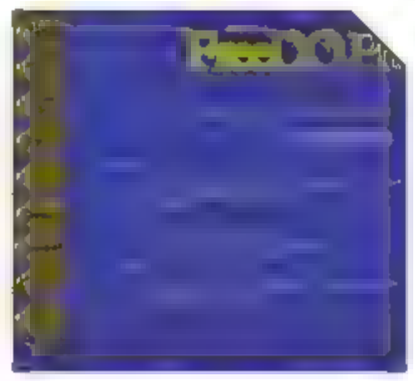
He explained the history behind 3DO. "Fundamentally, I had just in 1990 made a breakthrough deal with Sega that I knew would drive EA's growth through 1994, but I was concerned by a lack of initiative from the hardware platform companies. The business models, the lack of graphics power, the lack of optical disc storage all suggested the market would stall. 3DO was an effort to do something about it, to be a catalyst for better business models, graphics, and optical storage. For the best funding story, read the WSJ story that ran in January 1993." The company began as a project inside EA, bolstered by a development contract with New Technologies Group (NTG). 3DO was later spun out as a separate company and actually acquired NTG. As for the meaning behind the name? He tells us "The name was the result of me wanting it to end in 'O' along with video, radio, and so on and someone else suggesting putting 3D in front of it."

3ARLY DEVELOPMENTS

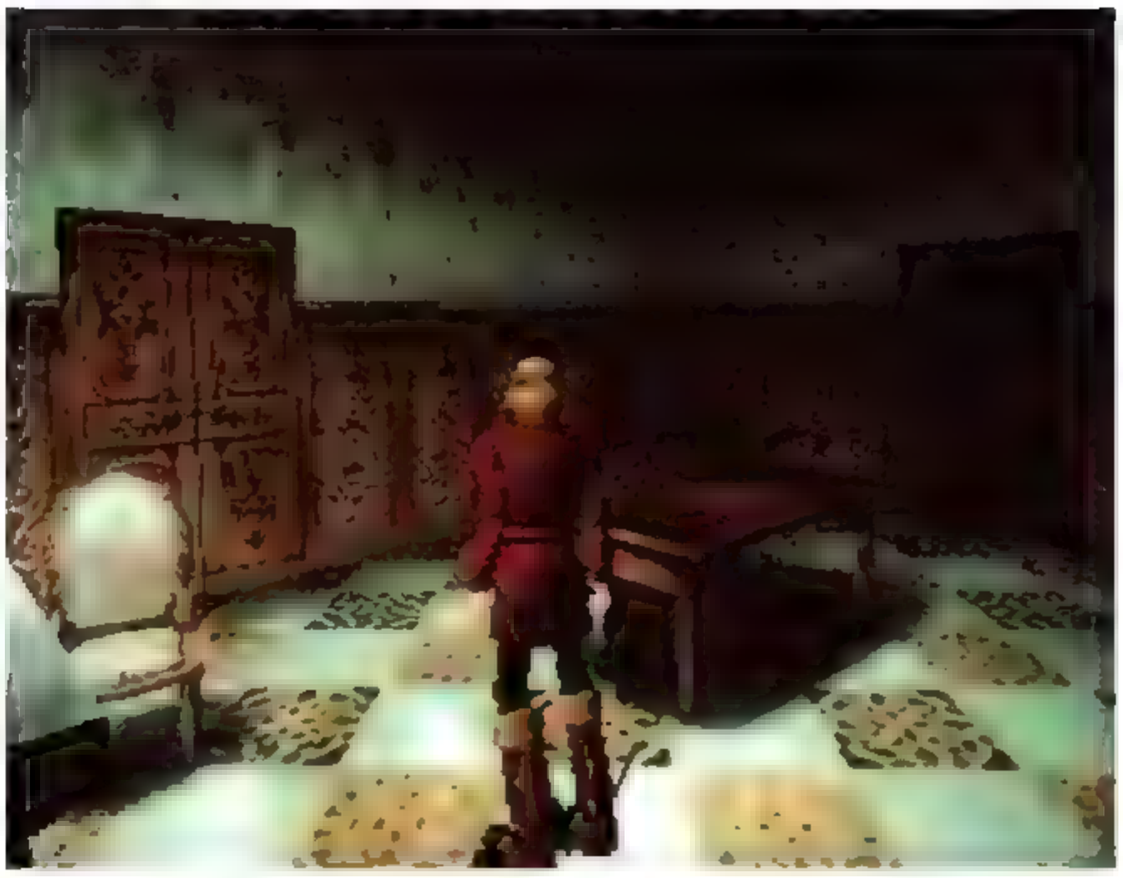
NTG was led by Dave Needle and included RJ Mical, both of whom had previously worked on creating Atari's Lynx handheld, and it was this team that went on to design the 3DO specifications. Here things get very interesting, since the project tried to kick-start a revolution that had already been attempted previously with the MSX range of systems. The goal had been to produce a single

The Real Thing?

Don't fee ike shelling out for a 3DO console? Then emulate it on your PC with the ongoing FreeDO project (**www.freedo.org**). Be wa nod though that ike many other underdog systems 3DO em ulat on has not yet been perfected. The alternative is to try and acquire the ridiculously scarce C reative Labs 3DO B aster card for PCs. eleased in 1995, a lowing you to run actual 3DO games on a Windows 3 1 computer. Apart from the difficulty of actually finding one the accompanying drivers, interface, and controller are all reported to be rubbish. It also only works with certain specific CD-ROM drives, and is very diff cult to set up. Meaning the only way to go really is sti by buying the original hardware. Let's just hope the on board memory doesn't start dying.



3DO INTERACTIVE MULTIPLAYER



There are few images of *D2* on the M2 (entirely different from *D2* on Dreamcast). Rumoured to have been completed, the project was lost when the M2 was cancelled and the development PCs scrapped

"THE PRESS WENT INTO HYSTERIA. ONE PUBLICATION EVEN IMPRUDENTLY DEDICATED ITS ENTIRE FRONT COVER, STATING THAT 3DO WAS THE FUTURE"

Peripheral Fission
The majority of 3DO related items are rare, often only available in Japan. Apart from controllers, a common item is the GAMEGUN lightgun, needed for titles like *Mad Dog McCree*. A mouse was also released, though few games were compatible. With several excellent beat-em-ups available, an essential purchase is the FZ-JS1 arcade stick (pictured). Solidly built, the additional buttons are perfect for *SSF2 Turbo*. More interestingly an aviation flight stick was released, taking advantage of aerial games. Other items include a steering wheel and an adaptor for SNES pads. There were also hardware add-ons, like the mostly redundant Video CD Adaptor. The most desirable item, though, the FZ-EM256 Memory Unit, is also the rarest and is very expensive. There is no other way to back up precious save files, and the internal memory's lifespan is finite.

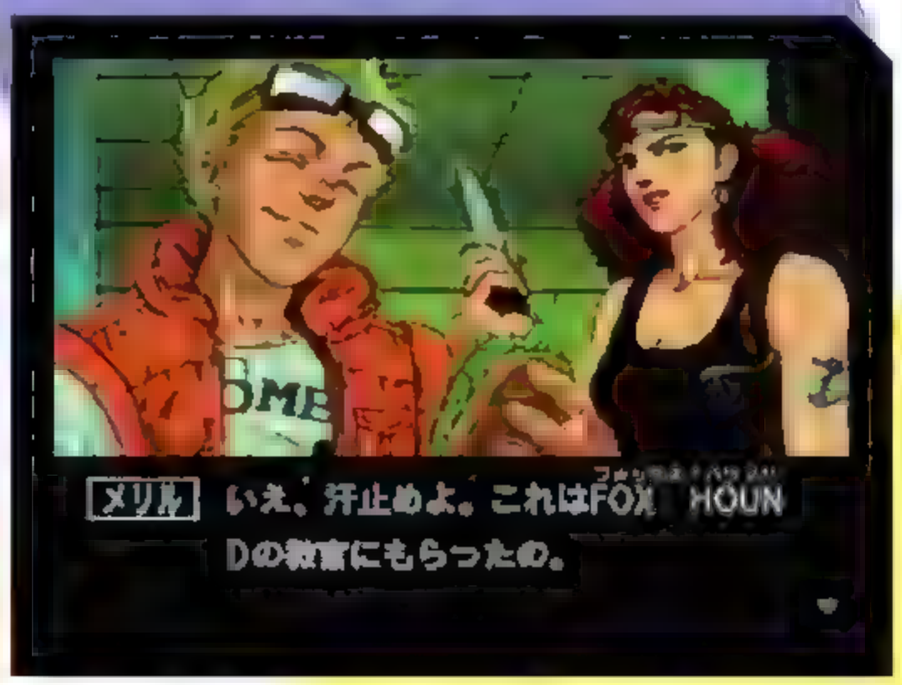
common design, which could be licensed out to manufacturers. In effect, a single unified format. According to Trip the hardware side of things used $100 million in capital, even though the 3DO company never actually built any of the systems. "The goal speaks for itself but it failed because we were ahead of the market in using some technologies that drove up the cost, and setting the licence fees so generously low made it impossible to fix the problem."

Those licensing the technology for manufacturing were global companies. Each would produce compatible systems according to 3DO's original specifications, while in some cases adding a personal touch. Machines sold in Japan came with additional memory and had their native character scripts built in. But at this early stage, decisions were made that would come back to haunt Trip. "The big obstacles in hindsight were that I set the [software] licence fee too low at $3 [per disc], which prevented us from funding enough marketing and subsidy of hardware pricing. And we used a lot of RAM and a CD-ROM drive when it was still a tad expensive for the latter and a weird period when RAM costs actually went up instead of following Moore's law." The new technology drove up the cost while the low licensing fees meant that Trip couldn't offset the problem. The generosity in licensing also didn't benefit them as expected. "Ironically, software companies did not really appreciate the generously low licence fees. First, they complained that the fees were still too high, and then they jumped in bed with Sony and Sega immediately and agreed to pay fees that were three times higher to them. Software companies were paranoid about who would sell enough hardware units, so they bet on all the horses, but only 3DO suffered from being unable to fund its business by setting the licence fees too low," explains Hawkins.

Meanwhile the honourable decision to omit territory lockout, making it region free, like many decisions, was based on giving consumers the best deal, and what they should have wanted, as Hawkins puts it, "what we thought was the right thing for the world and for the public." But he also quips that "it shows you just how far you go in the real world with such idealism." And he's right of course, since it was the greedy Japanese corporations, with their incessant need for global control, that ended up winning the console wars, region lockout and all. The idealism of creating a single format where you could play games from anywhere in the world arguably died with the 3DO.

As for the ingenious 'nut-sink' control pad design that also incorporated a headphone socket? That was the key guys at NTG, led by Dave Needle, encouraged them by pushing the social value of

Immercenary is an unusual take on the staple FPS genre. You're trapped in virtual reality, with other people who must all be killed.



Before creating *Metal Gear Solid*, Hideo Kojima worked on *Policenauts*, which featured both Meryl and Fox Hound.

Polystars by Konami, one of the few examples of software running on believed M2 hardware

A Japanese 3DO magazine – and no, we haven't a clue what the hell is going on either

having lots of people playing off one machine in one room and they were very clever in solving the problem elegantly." The solution was to allow each additional controller to be connected to the previous one, forming a daisy-chain. This must surely stand as the most phenomenal design decisions in the history of gaming (removing the need for multi-taps), and one that has sadly never been copied.

HIGH EXPECTATIONS

With the designs complete and 3DO looking set to take over the world, the press and in turn the public went into hysteria. Magazines reported on the unveiling at various trade shows and gave large amounts of coverage, hyping the system to incredible levels. You must remember, at that time the two most visually impressive consoles were the Neo Geo and SNES so the bold claims being made were revolutionary. One publication even imprudently went as far as dedicating its entire front cover, stating that 3DO was the future.

The system launched in September 1993 and was way ahead of other hardware, both in terms of capabilities and price – the latter being something few were happy with. This was because of Matsushita, the first licensed manufacturer. 3DO themselves had no way of regulating pricing, leaving consumers at the whim of the manufacturing partners. But as Trip explains, the situation was complicated. "It was entirely Matsushita's decision since they were the debut supplier. Many articles say the initial price was $799 but in fact it was really $699 when launched in September 1993. It was down to $499 by February 1994, but in a way it had already acquired a reputation by then of being too expensive. But Sony introduced the PlayStation at a similar price later in the year in Japan."

Despite the high prices and delayed titles, it didn't stop people salivating over and yearning to play games like *Crash And Burn*, or *Need For Speed*. It's easy to forget the atmosphere of the era, but there was nothing else like it at the time and so people were justifiably excited. With later additions such as memory units, adaptors that enabled VCD playback, arcade sticks and many other oddities like hotel pay-per-play systems (Japan only), not to mention numerous games the future seemed bright.

Estimates, based on tables compiled by third parties, put the final, officially released 3DO software number at approximately 200 titles (though further investigation raises the figure to around 340, when including unreleased games). Of these, several were exclusive to Japan (*Taiketsu! Rooms*), exclusive to the system (*Immercenary*), ports from other systems (*Samurai Shodown*), while others were edutainment or strictly adults only (*Plumbers Don't Wear Ties*). In the case of the many FMV games, they were often superior to their counterparts on other hardware (such as *Psychic Detective*).

TH3 DREAM IS OVER

Along with the initial high price, people agree that it was the lack of enough decent games and popular icons that killed the 3DO. Despite some valiant attempts, and there were many gems, most games could be found elsewhere or came out too late and with too little marketing to save it in light of the twin juggernauts Sega and Sony.

Trip believes it was more than just cost. "Personally, I think too much is made of the initial price. In my view, bigger problems were the lack of good software at launch and that we had locked into low licence fees and could not subsidise lower pricing or do much

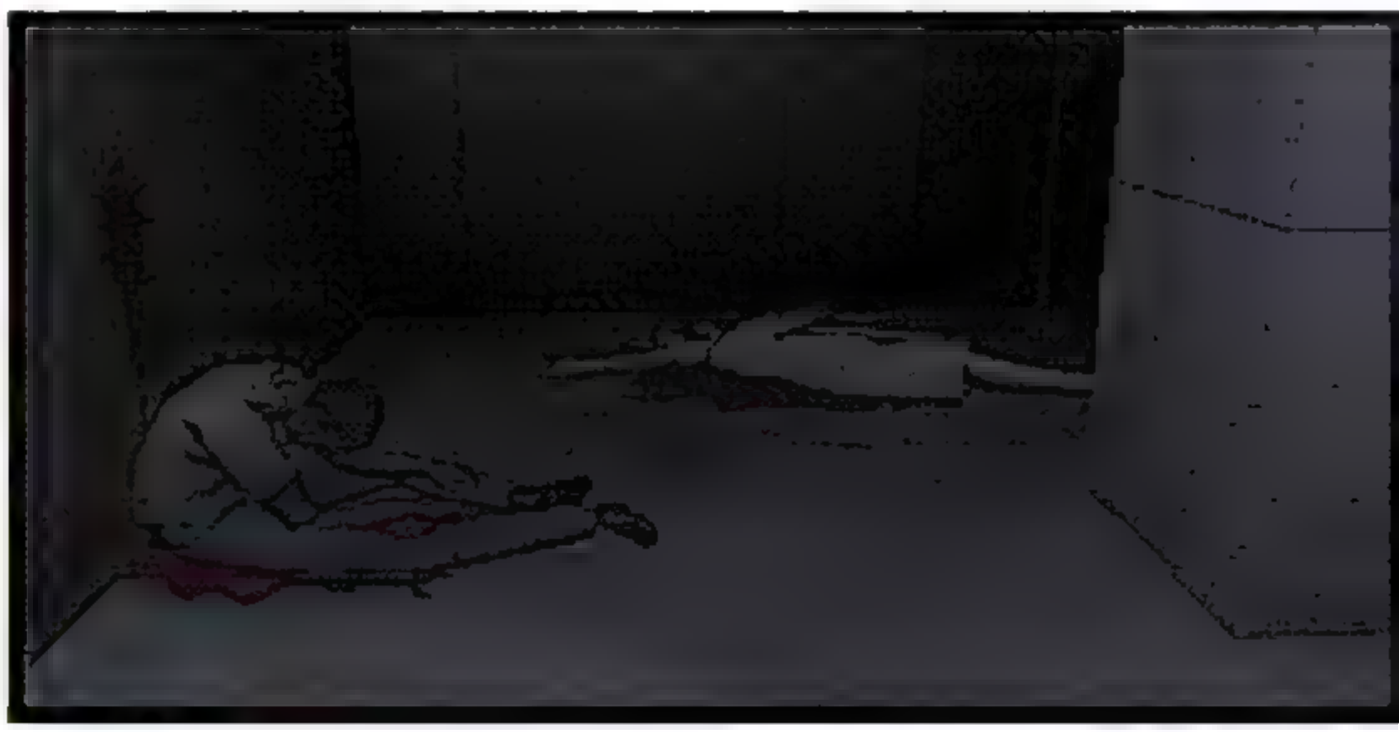
Price Guide

3DO system £40-£70
Prices can vary depending on the model and what comes with it. Though in Japan they're sometimes practically given away free at various "junk sofuto" shops, we recommend going for the top loading FZ-10 since with less moving parts there is less to go wrong.

Games £5
Most games such as *Return Fire* will cost you around a fiver or less. Of course no 3DO collection is ever complete without *Star Control 2* which goes for around £20. A bargain at thrice the price, but not always easy to find.

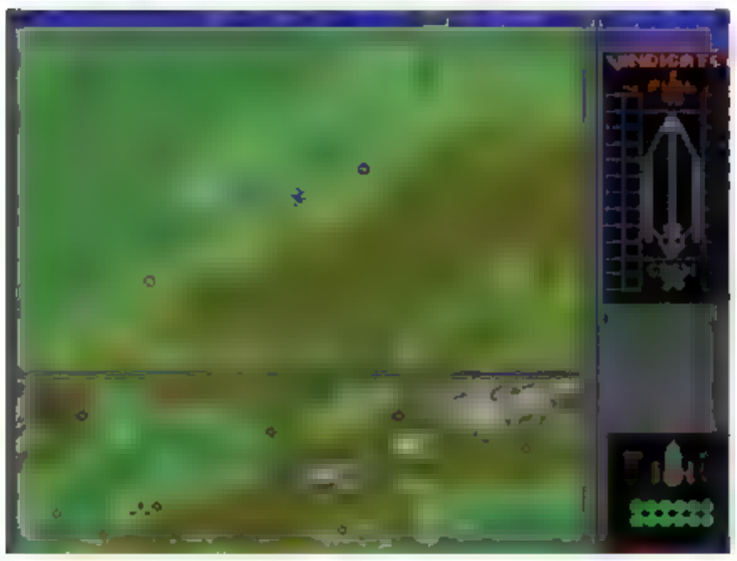
Controller £8
A trip to the online capitalist playground eBay reveals that these sublimely designed multi-linking pads can occasionally be bought unboxed quite cheaply. Friends willing to play on a 3DO may be harder to source though.

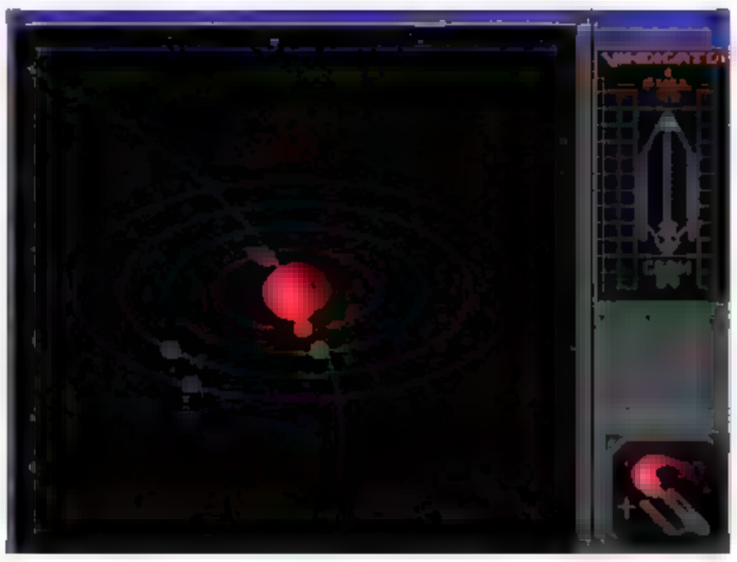
M2 Prototype System $2,500
Getting hold of the 3DO's stillborn successor will set collectors back a pretty penny (or at least lots of dollars). It may have no games and be almost useless, but can you really put a price on the kudos status that comes from owning a ridiculously rare prototype of unreleased hardware?

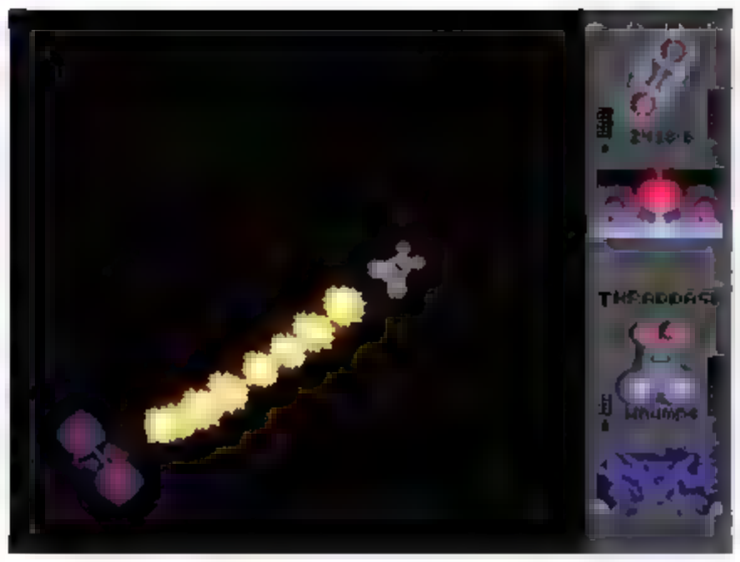


Feeling a little WARPed? For obscurity collectors *Rush And Fire Megades*, while for those seeking atmosphere over gameplay there's *D*.

3DO INTERACTIVE MULTIPLAYER





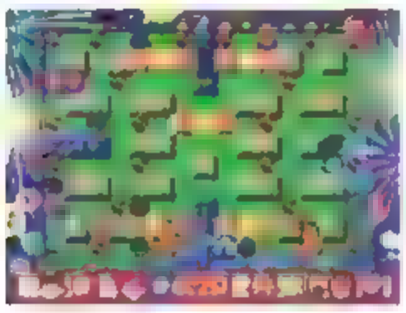


Above left to right: For many people *Star Control 2* is reason enough to buy a 3DO it's still amazing after all these years

marketing. Key titles from EA, like *Road Rash*, were as much as a year late coming to market. By then it was too late." The swathe of rubbish games and porn that adorned the system in its later years also didn't help (and don't accuse us of bias, there was lots of garbage released we're just not covering it). Neither did the lack of piracy protection help. CDs were easy to replicate using regular civilian burners, and these copies ran on standard unmodified machines.

Also, far too few of Japan's mostly excellent games made it to the West. The amount of 3DO titles only released in Japan is staggering

"SONY COMMITTED AND SPENT ABOUT $2 BILLION TO FORCE PLAYSTATION TO GET OFF THE GROUND. NEITHER 3DO NOR ITS PARTNERS EVER HAD EVEN TEN PER CENT OF THAT BUDGET OR APPETITE"



Cutesy four-player shenanigans in the shape of *Taiketsu! Rooms*, another tough-to-find Japan-only game

A Cyberpunk Thriller with the voice talents of Dennis Hopper and Grace Jones? That will be *Hell* then.

Trapped in a creepy mansion, *Doctor Hauzer* is another import worth considering, despite the language barrier

(there's a rather good article on some of them at **www.digitpress.com**). Titles such as the brawler *Yu Yu Hakusho*, the *Alone In The Dark* inspired *Doctor Hauzer*, Kojima's epic space adventure *Policenauts*, street-racer *Autobahn Tokio*, and simultaneous four-player game *Taiketsu! Rooms*, still remain unknown to most Westerners.

This is an important anomaly, since while other American systems such as the Jaguar, Xbox, and 360 have all failed in Japan, the 3DO had some degree of success. It was manufactured by several Asian companies (not just Japan, but also South Korea and Singapore) who licensed the technology, believing it to be profitable. Hawkins explains: "Our manufacturing partners were global companies and both we and they had global aspirations. Hardware partners included Matsushita, Sanyo, LG, Samsung, Creative Labs, and Toshiba."

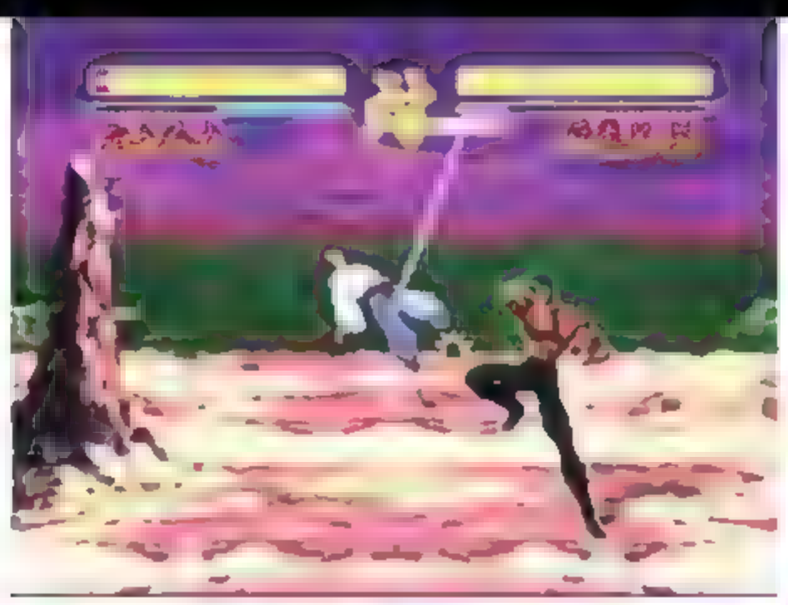
Some of the more interesting peripherals and merchandise were only released in Japan (see Peripheral Fission), while instead of looking at the system with disdain like they do Microsoft's machines, Japanese developers created several excellent games, though few were localised. Kenji Eno's WARP was a 3DO stalwart, releasing titles like *D*, blob-based puzzler *Puropon-Kun*, and the bizarre *Rush And Fire Megadas*, which seems to comprise WARP-based interactive TV channels. Another developer deserving mention is RPG-loving Micro Cabin. It wasn't up with Square, but for a system starved of good RPGs it was a godsend. Happily two of its RPGs made it to the West *Lucienne's Quest*, and the tactics-based *Guardian War*.

Oddly, many Western games were localised for Japan – even if they weren't suitable. *Star Control 2*, which contained several hours of English dialogue, had its text and voice-overs redone in Japanese – for a game built around communicating with strangely voiced alien races, to have all of them translated into Japanese is a surprise. More surprisingly, they did a good job, making the game a collector's piece.

But why did Japan support Trip Hawkins' dream so strongly? The reasons were likely twofold. The first was price. It was cheap to develop for, and it was much cheaper to acquire a licence for than other hardware. Japanese business is polarised: there are the big players like Sony and Matsushita, and then the (more experimental) little guys like Micro Cabin and WARP. The 3DO represented to the little guys an opportunity to cheaply develop games on CD, for the latest 32-bit hardware. It was a great way to experiment safely with the new medium and technology, in preparation for later developing on Saturn and PSone, an entry for many into the next generation. While their early 3DO efforts may have been rough around the edges, the experience gained would be invaluable later on.

The second reason was that Japanese companies were manufacturing the system while taking it slightly, which helped immensely with gaining some degree of public acceptance. The 3DO had ideals and Japanese involvement, conversely the Xbox is unmistakably American and far from idealistic. It's not that Japan is anti-American, rather that they're pro-Japanese, when Matsushita was the first manufacturer of the machine, inevitably the Japanese must have taken notice and assumed it to have merit.

The two Micro Cabin RPGs that reached the West. *Power Kingdom* and *Lucienne's Quest*. Both are well worth tracking down.



Left to right: Some fantastic beat-'em-ups were available: *Yu Yu Hakusho*, *Samurai Shodown*, and of course, *Super Street Fighter 2 Turbo*. Just make sure you get the arcade stick.

The M2 prototype bought by Stephen Flynn for $20, and sold to Thomas Riemer for $2,500. That's a lot of dollars

THE M2 FUTURE

Trip announced the M2 follow-up in 1995, but 3DOs stopped being sold some time in 1996, forcing many planned developments to remain unreleased. "The big one is that we built one of the first truly interactive, broadband TV networks with Time Warner and US West, which used a special 3DO model as the TV set-top box. It was built and deployed in a trial but never commercialised."

The M2 was completed but never released, and no examination of the 3DO legacy could be comprehensive without looking at the M2. Wishing to pull out of the hardware market, Trip Hawkins sold the next-generation M2 technology to Matsushita (original licensor and debut 3DO supplier). The price was a cool $100 million, which recouped all the costs from Hawkins' initial 3DO venture. Legend has it, that the person behind this deal was demoted from a high position at Matsushita, then relocated to and put in charge of a fish cannery far south of Japan.

The M2 looked ready for launch, much to the anticipation of gamers. Some games are alleged to have been finished, most notably by the eccentric band of mavericks at WARP. Rumour has it they even created a vastly different version of *D2* for the machine. Tech specs and screens of these apparent titles showed the system to be far more powerful than the PSone, making it seem ready to conquer the market. The project was shelved though. Trip Hawkins gives some fascinating insight into why, "The reality is that while Matsushita won the VCR war with Sony and acquired Universal Studios and seemed as media-savvy as Sony, in truth Sony thinks like a digital media company and Matsushita thinks like a hardware manufacturer. Once Sony waded in with guns blazing, Matsushita got that 'deer in the headlights' look and they just froze and didn't want to get into a battle with Sony. Sony committed and spent about $2 billion to force PlayStation to get off the ground, and neither 3DO nor its partners ever had even ten per cent of that budget or appetite."

Regardless, 3DO's successor still entered the public arena in various guises. The full story warrants several pages, but let us recap briefly: M2 hardware made it into crippled media players, which were apparently used for car presentations by Chevrolet and Chrysler, and also a 3D house building system for room planning. More unusually, it also made it into Japanese coffee vending machines and Russian ATMs. So enamoured is the underground hardcore collective that there's been jovial banter of trying to smuggle said vending machines and ATMs across the border, in order to acquire an actual working system. Finally, it was also used to create games for arcades, though only Konami seemed to develop anything. Some of their titles include *PolyStars* and zombie-themed blaster *Evil Night*.

Proper M2 systems, both development and prototype, are a little more rare. In mid-2005 there was the discovery of a prototype system, bought for $20 at a North-Carolina flea market by Stephen Flynn. Once the furore had passed, the machine was then sold to Thomas Riemer in Germany for $2,500. Mr Riemer informs us that there had only been one other M2 discovered in a similar though not-quite-as-finished state, which sold for a comparable amount. The OS menus for these machines point to something interesting: the system was to have a final controller design nearly identical to that of the N64's.

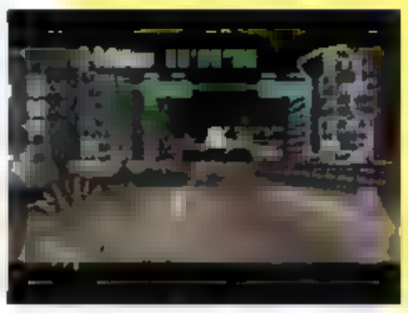
3DO the company continued, dealing only in software, before finally filing for Chapter 11 in 2003 and putting an end to the name and legacy. In the beginning everyone had been optimistic, but the reasons for the collapse were complex. "3DO was the first hi-tech company to go public without a real operating business [presaging] the dotcom bubble. The irony of this is that by going public and achieving a market value greater than $1 billion, 3DO first cost its strategic partners because they had a hugely profitable exit, and then 3DO failed because its access to capital dried up. Many people think of an IPO as a victory but for 3DO it was a death sentence." We pitched the question of whether Trip thinks anyone else will ever pick up where he left off with 3DO, and create the hallowed single-format console. "In some generations that may happen. It could be as simple as Microsoft deciding to get out of the business without anyone else jumping in to be number two. It is always possible to create standards, as evidenced by the recent successes of DVD and the web. But it is hard work and in many situations the odds are stacked against it happening. There is no question it is a much harder thing to accomplish with consoles, and that is why it has never happened successfully." Afterwards Trip Hawkins moved forward, and today says "I am now making the top-rated mobile phone games with my new company, Digital Chocolate. I can say with clarity that I am applying the lessons that I learned from 3DO. As they say, God doesn't give you anything you can't handle." If the cards had only been played differently, the 3DO and M2 could have been successes to change the games industry for the better.

This controller image is found on the Movie Player option screens of M2 prototype systems, which were developed before the Nintendo 64

SPECIAL THANKS TO

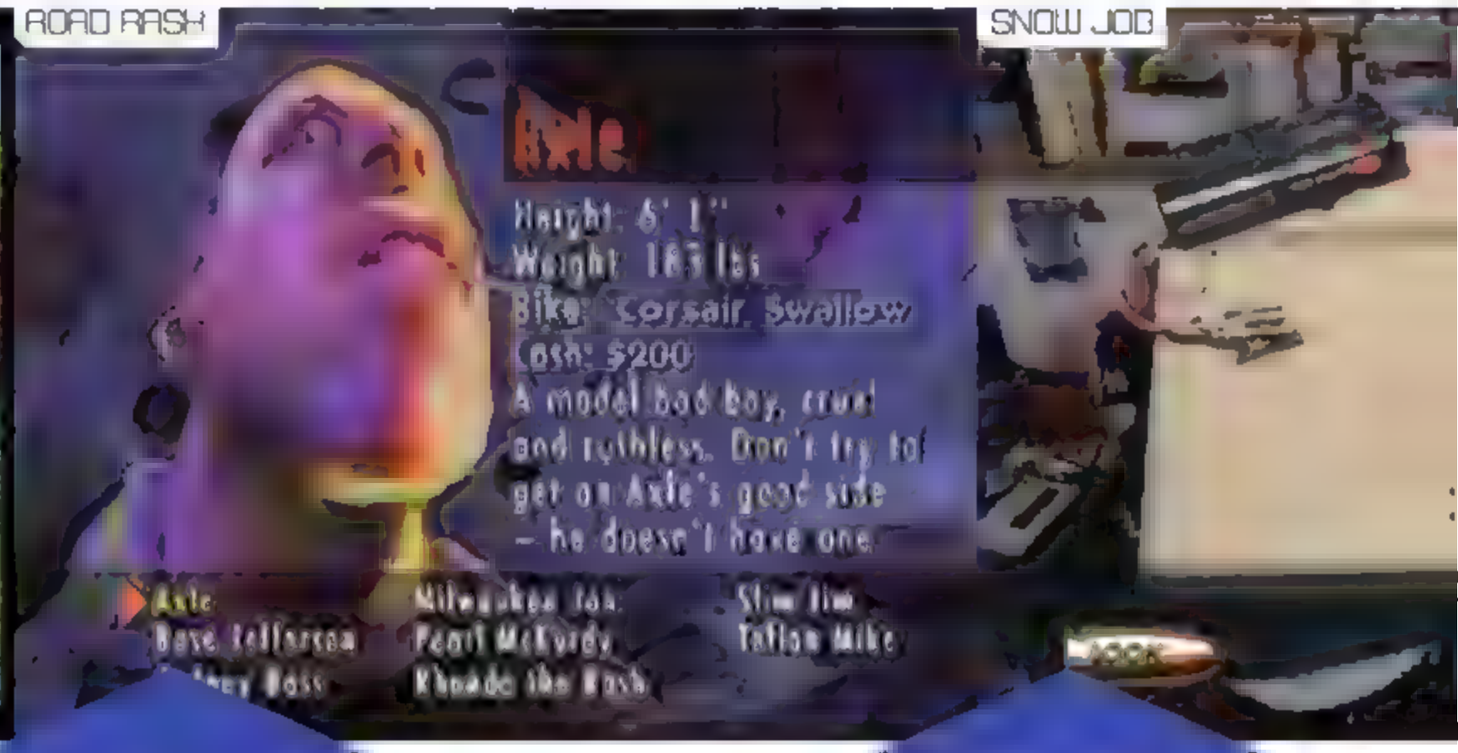
Trip Hawkins, and also W[illegible]3DOkid' Matthews of **fz1-3do.blog.co.uk** for providing the majority of screenshots, and also resources. His goal is to review every 3DO game released, so check out the site. Thanks also to Thomas Riemer and Digital Press for some additional images.

"3DO REPRESENTED AN OPPORTUNITY TO CHEAPLY DEVELOP GAMES ON CD FOR 32-BIT HARDWARE. A GREAT WAY TO EXPERIMENT SAFELY IN PREPARATION FOR DEVELOPING ON SATURN AND PSONE"



It may resemble *Gran Turismo* when you squint, but in motion *Autobahn Tokio* is a jerky and laughable mess

PERFECT TEN GAMES



LUCIENNE'S QUEST

RELEASED: 199?

DEVELOPED BY: MICROCABIN

BY THE SAME DEVELOPER: THE DEEP BLUE FLEET

When a system is starved of a genre, it becomes easy to lavish praise on unworthy titles. Despite being one of few RPGs released, *Lucienne's Quest* deserves its praise. By no means an epic quest (needing under 20 hours), it was packed with light-hearted charm and clever ideas. Rather than playing a hormonally enraged teenager with spiky hair like other jRPGs, you control a wizard's female apprentice who decides to help a warrior cure her lycanthropy, only to be joined by equally colourful characters. You also begin with teleportation magic which eliminates all backtracking. The battle system meanwhile is fun and unique, allowing real-time damage to the surroundings. Blithe but enjoyable!

STAR CONTROL 2

RELEASED:

DEVELOPED BY:

BY THE SAME DEVELOPER:

Explore outer space while communicating with strange alien races, having hellishly intense dogfights, and unravelling a millennia old mystery – all in order to free Earth from the "slave shield" problem it's gotten into.

ROAD RASH

RELEASED:

DEVELOPED BY: ELECTRONIC

BY THE SAME DEVELOPER:

It was late arriving on the 3DO, but *Road Rash* reinvigorated the bikes-and-violence formula like never before. Gone were the cartoony sprites of the MD games, instead replaced with gritty digitised characters – every eruption of violence with a chain or club felt wonderfully savage and guttural. Environments were also truly 3D with an exhilarating sense of speed. But the biggest improvement was atmosphere; heavy rock bands like Soundgarden allowed their music to be used, which, when combined with the between-races bar-room sunset-pastiche of talkative yet scummy bikers, genuinely made you feel like a member of this carburettor underclass; a social miscreant with a penchant for bikes, booze, heavy rock, and violence!

POLICENAUTS

RELEASED:

DEVELOPED BY:

BY THE SAME DEVELOPER:

There are many Japan-exclusives worth mentioning – *Policenauts* was also released on the Saturn and PSone – but more should know about Hideo Kojima's "forgotten" game!

policenauts.net

SNOW JOB

RELEASED: 199?

DEVELOPED BY: STUDIO 3DO

BY THE SAME DEVELOPER: BLADE FORCE

"An FMV game?!" we hear you collectively cry. Yes, but one that's very good. It's actually regarded as one of the all time best in the genre – trust us on this. Instead of having an embarrassing and nonsensical plot (like most FMV games), *Snow Job* takes place on the gritty streets of present-day New York; you're an ex-cop trying to bust a drugs ring while preventing the murder of your DA girlfriend. Unlike traditional FMV games, which involve pushing one or two buttons, this plays like a detailed point-and-click adventure – using digitised 360 degree environments and FMV for dialogue sequences. Passable acting and it's quite complicated; adventure fans should love it!

STAR CONTROL 2

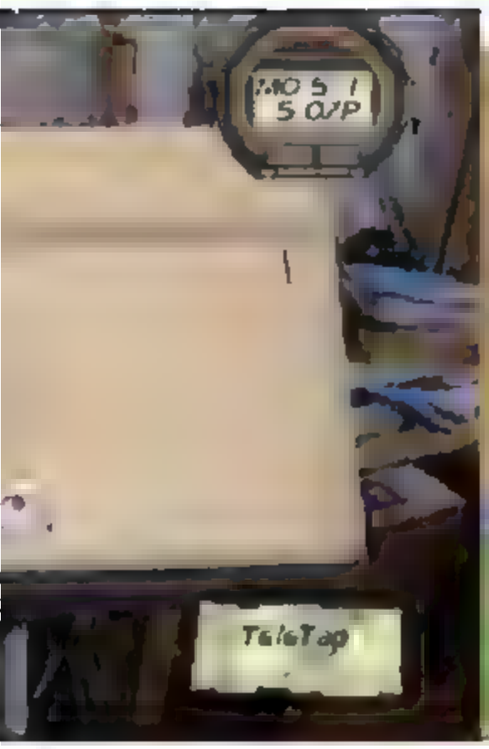
POLICENAUTS

MERCENARY

3DO

Seen by many as folly, Trip Hawkins' 3DO nevertheless featured some stunning games that deserves to be experienced by the more open gamer and we've selected the cream of the crop for you to cast your eyes over

PERFECT 10



MMERCENARY

RETURN FIRE

- RELEASED:
- DEVELOPED BY:
- BY THE SAME DEVELOPER:

Designed by Baron RK Von Mollehield

and aural candour that could only be realised

With 100 levels, nine terrains and only ever one adversary, the game's mental cha

capture the enemy's ...rn it to your base.

WAY OF THE WARRIOR

THE NEED FOR SPEED

- RELEASED:
- DEVELOPED BY:
- BY THE SAME DEVELOPER:

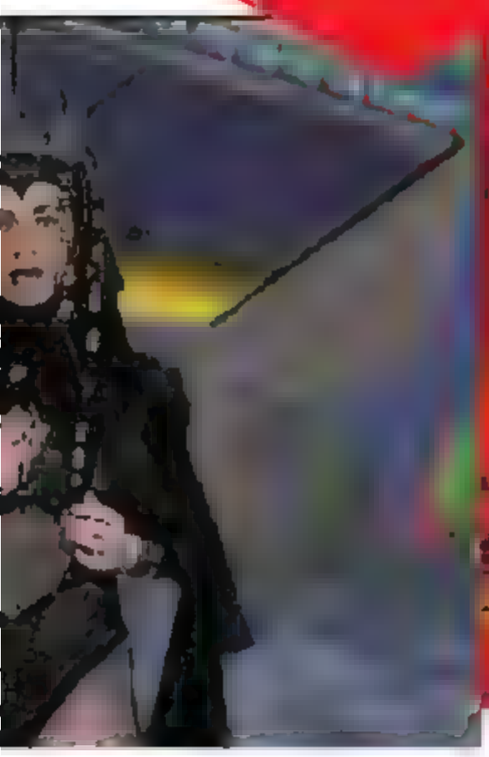
From the team behind *Test Drive*, *The Need For Speed* fell to EA through acquisition. It aspired to create a driving game to equa... *Ridge Racer* and Deytona's arcade

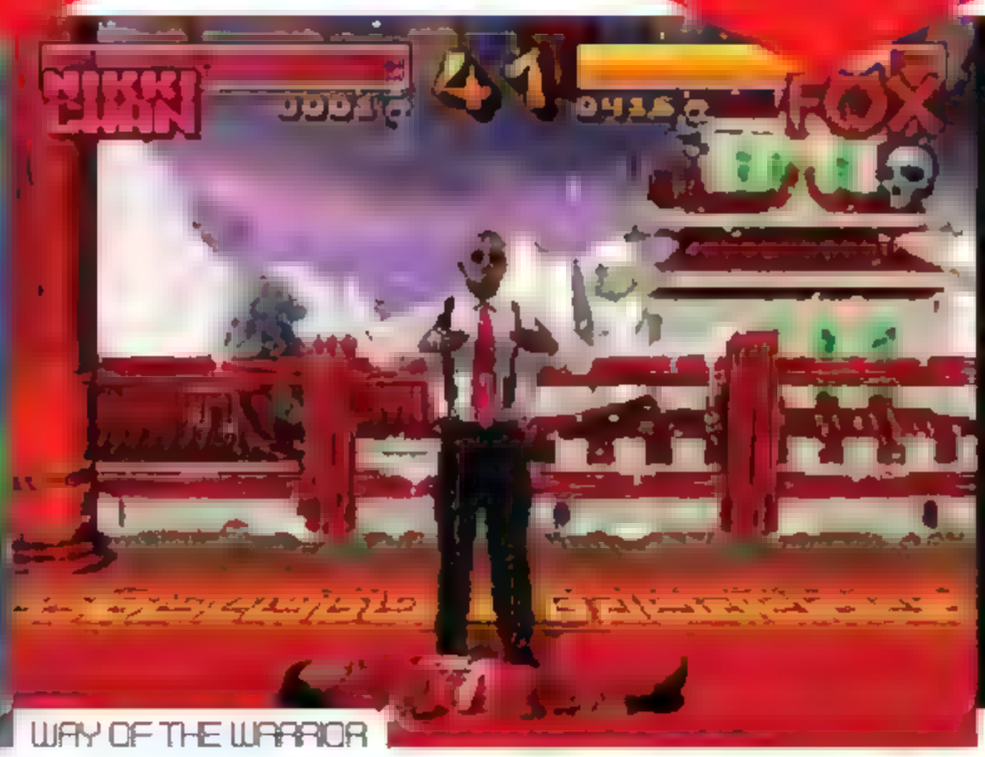
...gouraud shading. A slim ... underscored with ...nfro for each

... three c... eng...

... playing every dr... of the le...

WING COMMANDER 3 HEART OF THE TIGER





WAY OF THE WARRIOR

WING COMMANDER 3 HEART OF THE TIGER

Year released: 1993

Original price: $249 99 (US), £199 99 (UK), ¥24,800 (Japan)

Buy it now for: £20-£40 (eBay)

Associated magazines: Jagwired (fanzine), several inserts, EGM, GameFan, Gamepro, Edge

Why the Jaguar was great... At launch it was far more powerful than any other cartridge system, considerably cheaper than 3DO, and there were eventually some amazing exclusive games released, but the Jaguar and CD add-on only truly excelled after Hasbro Interactive relinquished the rights to it. It thrives today thanks to conventions and a bustling home-brew community.

JAGUAR

WITH FEWER THAN 100 GAMES RELEASED, CORPORATE EXECS WHOSE BEHAVIOUR BEGGARED BELIEF, AND EVENTUAL PUBLIC APATHY, THE JAGUAR WAS A COMMERCIAL FAILURE. AND YET LOOKING BENEATH THE SURFACE THERE ARE MOMENTS SO AMAZING, THE MACHINE DESERVES AN ENTIRE BOOK DEDICATED TO IT. JOHN SZCZEPANIAK SETS THE RECORD STRAIGHT ON ATARI'S LAST SYSTEM

Atari's Jaguar is one of the most misunderstood and under-utilised consoles in history. In many ways it's comparable to Sega's Dreamcast both had a short lifespan, have their own dedicated conventions, were the last consoles produced by their respective companies and both continue to live on through thriving independent development communities.

Despite being championed as an American machine, Jaguar was actually conceived by British minds in Cambridge, Britain becoming a key supporter of Atari's ill-fated beast. The planned VR headset, launch title *Cybermorph*, and critically acclaimed classics *Tempest 2000* and *Alien Vs Predator* were all developed by Brits (though *AVP* had American assistance).

UNCLE CLIVE?

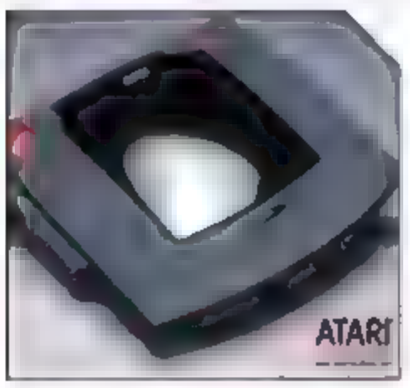
Martin Brennan and John Mathieson, who had left Sinclair Research after Amstrad took over, formed a Cambridge-based company in 1986 called Flare. It's reported they took with them, or were at least influenced by, the designs of the aborted Loki computer project being developed at Sinclair. Regardless of Loki's alleged influence, the pair began work on their own multiprocessor games machine, which eventually became the Jaguar. *Alien Vs Predator* lead programmer Andrew Whittaker has said on record that apparently some of the Loki technology also ended up in the SAM Coupé and as a result it "shared many interesting features with the Jaguar in terms of its video chip."

Brennan and Mathieson wanted to enhance their system's performance, so contacted Atari. Despite working on the eventually abandoned Panther console (which documents show had several similarities to Jaguar), Atari liked what it saw at Flare. Another studio, Flare 2, was formed to complete development of the new 64-bit system. Jaguar progressed quickly and in 1991 Atari cancelled the Panther, despite having said it was ready for production. Jaguar's launch (which some call hasty) was in December 1993, but Europe was severely undersupplied. It was even released in Japan, though wasn't popular (less than five thousand were reportedly sold), and in March 2006 Famitsu produced

Jaguar Festival

Good buddies, a few beers, affordable merchandise, and 32 player networked Jag action – internationally held JagFests are the zenith of Atari gaming. We asked Kevin Manne, the original co-organiser of the first 1997 event in Chicago, to tell us more.

"JagFest was a way for like-minded gamers to get together and enjoy Jag gaming. The biggest draw I would say, is the networking abilities. JagFest is the only time you'll get to play a large network of *Battlesphere*, Air Cars or even head to head *Doom*. Not only would it be very expensive to buy all the necessary hardware, finding enough people willing to play locally can be a challenge. JagFest also gives fans the chance to see rare and one-of-a-kind items from each others' collections. Rarities such as the Jaguar VR, Jaguar Voice Modems, prototype and unreleased games are all fascinating pieces of Atari history."



Other developments

From the Jaguar came exciting developments. Many were cancelled, some were birthed into ailing public arms, while others were created by fans. The Jamma Stick, Rotary Controllers (*Tempest 2K+*) and specialist network equipment all came after the system died. Few know the Jaguar hardware was used for arcades. They added hard drives and tweaked the technology, but it shows the system's power. Cojag (Coin Operated Jaguar) powered the *Area 51* arcade game. Then there was the cancelled Jag Duo (pictured), a combined Jaguar and CD system. There was also the planned VR headset, with a few working prototypes around, and voice modem, which would have allowed voice communication during online multiplayer. They also intended for Lynx connectivity. *AvP* originally used it as a motion tracker, but this was eventually scrapped. Finally there was Jaguar II, which was semi-complete. There were no games, but fans are working to finish it.

a satirical video on it. Strangely, Jaguar even officially made its way to Korea. Daryl Still of Atari UK spoke openly: "I was marketing manager, PR manager, and co-managed the European studios (producing titles like *Attack Of The Mutant Penguins* and *Fever Pitch Soccer*). There were only a dozen or so of us left, so we all multi-tasked." Still elaborated on initial UK reactions. "The press and retail reaction to the hardware itself was immensely positive. More importantly the public demand was huge. Some of the titles were revolutionary. *Alien Vs Predator* was probably the first FPS that focused on tension and fear instead of non-stop shooting. As a result, *Edge* misunderstood it entirely and gave it 4/10 and got completely lambasted by the public. The issue we faced was availability. Europe was promised 250,000 units for the first Christmas, but received only 25,000 in early-December, with a further 25,000 on 23 December."

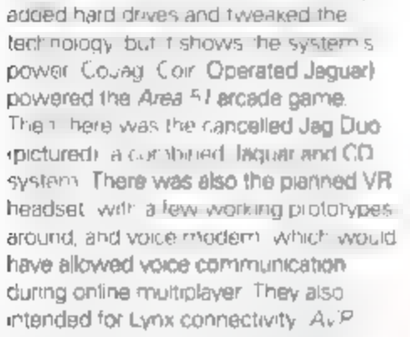
Despite initially outselling the near-three-times-the-price 3DO, Jaguar didn't succeed. Many blame Atari for rushing higher quality titles were delayed for several months. We asked Still about any negativity in the UK. "To be honest, we didn't detect any negativity regarding the machine. Some of the software titles were average, but we always had more demand than we could supply for hardware. Coping with consumer demand and frustrations at Christmas was probably the hardest thing. There is nothing worse than a mother who cannot get what her child wants for Christmas, and we had them camping out in our reception in Slough." According to Still, critic sms were raised not at the system, but at their handling of it. "It was frustrating because there were 12-15 of us *total*, doing a Europe-wide launch of a major electronic commodity with absolutely zero budget, getting pages upon pages of press coverage and building an enormous demand. And we were hearing that we were rubbish at marketing, from journalists who knew absolutely nothing about the reality of the situation. You felt like screaming at them 'C'mon then, you come and see if you could do any better with our finances.' But of course we couldn't say a word. We just had to keep on going."

The American side of things was markedly different according to Steven Kent, in his *Ultimate History* book. The Tramiels' reputation and previous tactics alienated many, and some retailers refused to stock Jaguars. Only a few of the supposed 200 developers that pledged to make games delivered. Of these, several were lazy 16-bit ports that didn't take advantage of the hardware. With more powerful systems from Sony, Sega and Nintendo on the horizon, public apathy set in. People also disliked the controllers. While having 12 numerical keys that you can customise with game-specific overlays was brilliant in theory, most found them cumbersome, arguing they were inferior to SNES pads. Atari tried to remedy this with the Pro Controller, but few games utilised it.

In 1995, after two years of Atari haemorrhaging cash, Sam Tramiel had a heart attack. A year later Atari was 'reverse merged' with hard drive manufacturer JTS. Stock plummeted to record lows, the company went bankrupt, Jaguar ceased, and the Atari division was sold to Hasbro Interactive, later bought by Infogrames. Countless other publications have covered these events, but **Retro Gamer** tracked down, stalked, and like the proverbial Jaguar, pounced on those who were once there in the vortex.

THE EYE OF THE JAGUAR

One of the problems was publicly proving Jaguar's strength, something not helped by confusion over 64-bit architecture. US magazines contested its power. Developers, those best to comment,

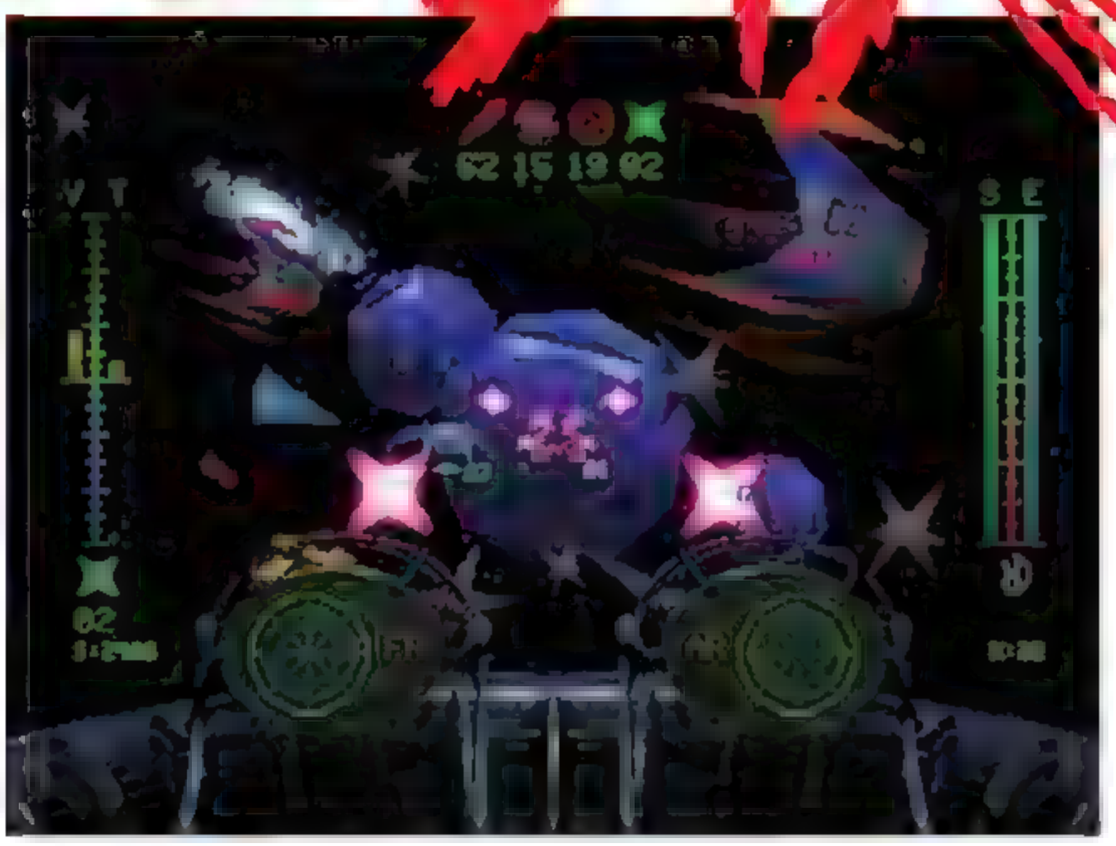


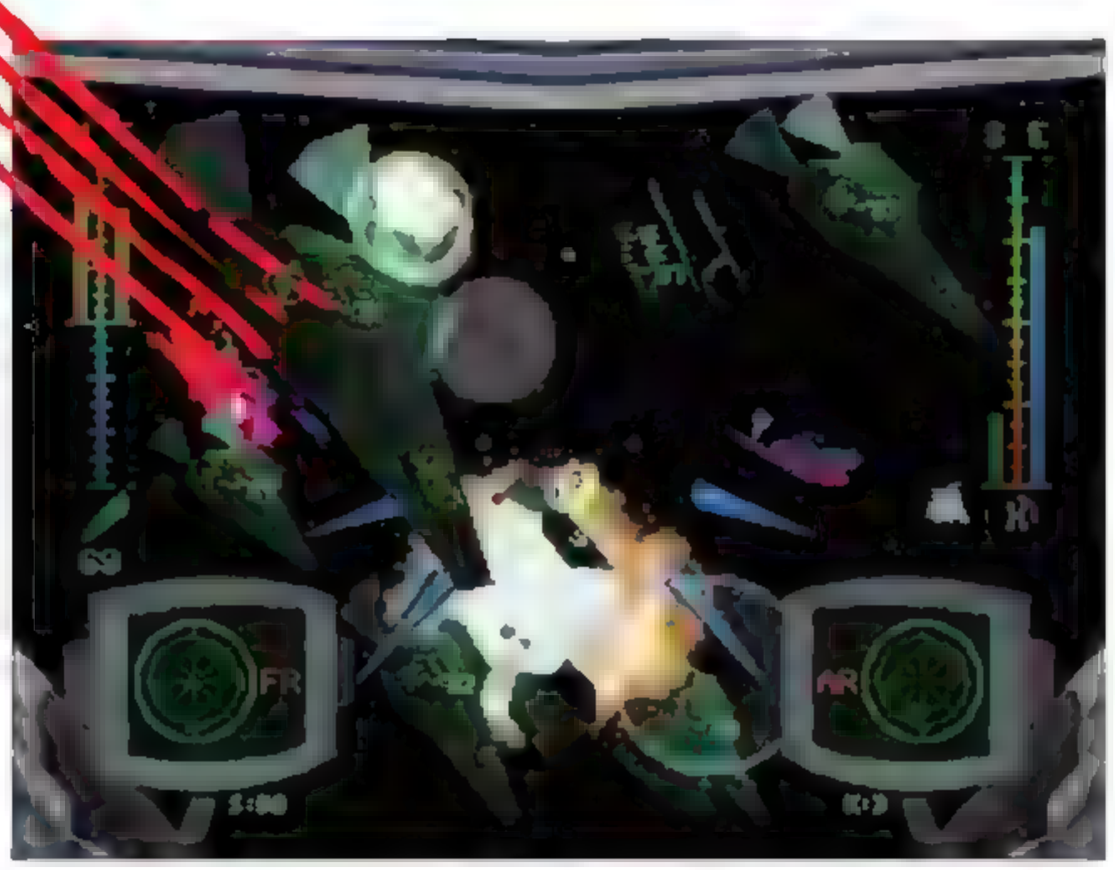
If you're looking for a good adventure, try *Highlander* on the Jag CD. It was based not on the films, but on the animated series.

Atari directly challenged the competition. Look, they're about to gobble up Sonic, Yoshi and Mario.

Atari released the Pro Controller near the end, adding three extra face buttons and two shoulder buttons.

JAGUAR





» The highly acclaimed *Battlesphere*. Free-roaming combat plus countless ships, explosions, and special effects push the Jaguar more than any other game, showing just how powerful it was

saw things differently. Prolific assistant to 3D Stooges, Kevin Manne spoke on media attitudes. "It's always been an 'us against them' feeling, trying to squelch common misconceptions. EGM once said the Jag was only 64-bit if you added up the 'bitness' of multiple processors, when in fact [it] does have fully 64-bit components. Once a system gets a bad reputation, it's hard to gain mass acceptance."

Doug Engel of ScatoLOGIC, who co-developed *Battlesphere*, and also ScatBOX hardware, responded fervently. "Jaguar was truly a '64-bit system'. Some people equate bitness with power on a linear scale. It's like equating the number of cylinders in a car engine with horsepower. Most people think a V8 has a huge advantage over a four cylinder, but [early-20th Century V8s had less power compared with modern four cylinder engines]. A 64-bit processor from 12 years ago is easily bested by a 32-bit processor made today. There were lots of arguments saying the Jag wasn't 64-bit. Speaking as a developer, I can say it was."

Even without the confusion of how much 'bit muscle' its Tom-and-Jerry chips pushed, many labelled the M68000 processor as not only weaker than up-and-coming systems, but also barely superior to past consoles. Engel contests this and elaborates, "The Jaguar was most definitely not underpowered compared with systems like the SNES and Genesis. It was difficult to program for because the development tools were in an unfinished state and the hardware had crippling bugs. There was no knowledge base to consult and nobody had experience. Ten years later, there's a lot of sample code and many with experience, so though we still have to use buggy development tools, it's much easier to make games today than when it came out."

At the time no one harnessed the system's true power, only recently have developers really seen what's capable. Skilled programmer Steven Scavone, key member of 3D Stooges, which released *Gorf*, still develops for Jaguar. Comparing it to systems he's worked on, Scavone elaborated on tech-specs, also explaining in layman's terms. "It should be coded in as much assembler as possible. This machine flies when fuelled by assembler. The RISCs in proper concert with the 68K will do some absolutely amazing graphics. The Jaguar could [utterly] crush any 2D system. It's a lot easier to program 2D for than the PSX or N64. You can thank the Tramiels for it being 'underpowered'. The chips were not complete and had bugs. The designers, who weren't experts in silicon design, missed fundamentals. Just one more register and [it could have run without stalling all the time]. If they [had fixed this], the Jag would have blown away the PSX. Later 3D titles like *Battlesphere* proved that systems at the time were no match for it."

Quite a revelation. We questioned Scavone further about the PlayStation comparison. "The textures are cleaner. PSX is faster but much uglier and unfixable [since it's built into the] hardware. Jaguar is more flexible and can [remove texture] ugliness. Then there's the VLM in the CD player, which blows PSX away in disc access speed, [which] was awful with load times. Jaguar was surprisingly fast."

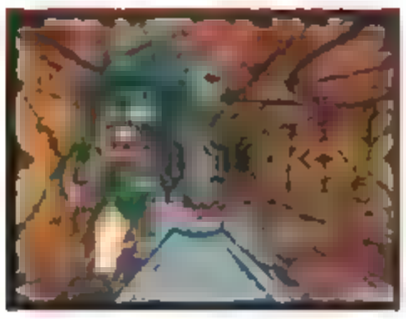
High-profile coder Scott LeGrand, who co-developed *Battlesphere* alongside Engel, gave his own comparisons. "The Jaguar was anything but underpowered. It had more computational firepower than anything else of that era, including the original PlayStation. [Jaguar] was actually easier to code for than the Saturn. However, PlayStation had hardware 3D acceleration, was a dream to code, and had Sony's marketing

"JAGUAR IS COMPARABLE TO DREAMCAST: BOTH HAVE THEIR OWN DEDICATED CONVENTIONS, WERE THE LAST CONSOLES PRODUCED BY SAID COMPANIES, AND BOTH LIVE ON THROUGH INDEPENDENT DEVELOPMENT"

Jeff Minter is going to be really angry with us. But we preferred *Protector SE* over *Defender 2000*.

JAGUAR

"THERE WERE LOTS OF ARGUMENTS SAYING THE JAG WASN'T 64-BIT. SPEAKING AS A DEVELOPER, I CAN SAY IT WAS"
DOUG ENGEL



Alien Vs Predator was the game that convinced many to buy the system. Even today it's still a supremely playable FPS

muscle behind it. Atari didn't stand a chance." PlayStation had built-in hardware acceleration, everything had to be done manually with Jaguar. LeGrand explains further: "*BattleSphere* might have looked better on the PSX [in terms of raw polygon count], but its gameplay would have suffered. The Jaguar's multiple CPUs enabled me to do things with physics and AI that were a good five years ahead of the rest of the industry. It wasn't until *Halo* that I finally felt outgunned."

It had untapped potential, so we challenged the developer on its failure. LeGrand laments "Destiny, pure destiny. But not for the reasons everyone thinks. The Jaguar was a dream to code compared with the PS2. The real reason is that the Tramiels didn't have the resources to put together an adequate developer relations programme, nor did they spend money to [license] titles like *Mortal Kombat 2* (would have been the smartest $1 million ever spent). Sony had money. Big money."

LeGrand's colleague Engel complains there's too much to cover, adding: "Can't you write a book on this instead of just an article? Most of the problems relate to the fact that Atari was too small to compete with the giants. Jaguar was rushed because Atari didn't have the resources to [finish it on time]. Atari lacked the money to properly market it, and they made some poor choices when it came to [licensing] titles."

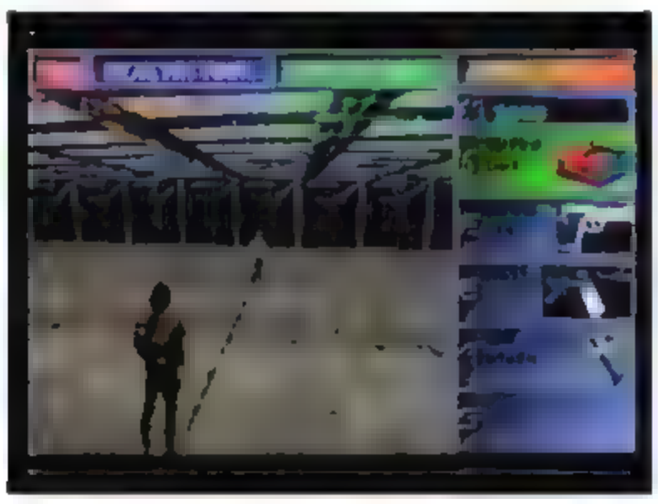
Arguably the biggest Jaguar collector in the world, Jason Smith of **www.jaysmith2000.com**, who provided resources for this article agrees with Engel. "Atari marketing for the Jaguar left a lot to be desired, that's for sure. A big part of the downfall without question."

Those working close to them weren't pleased with the Tramiels, as LeGrand explains. "The Tramiel kids meant well, all of them, but the skills required to run a corporation just weren't in them. These guys would run around poaching cash-starved but innovative technology and then inject the family fortune into it until it [failed]. Then they'd pull the plug without telling anyone. [That's exactly what they did with Jaguar] Working with Atari was nonsensical. They were great at getting their technology into the hands of developers, but they didn't have the resources to put together competent developer support."

Internal Jaguar employee BeeJ West, who worked on *BIWN*, gave a lengthy and scathing critique of Atari USA. Some printable highlights: "The situation [there] might have broken less hardy souls. What did I think of Atari? Damn, there's an entire book there. I was utterly horrified by the state of affairs. [Anyone] could see something was rotten in the state of Tramiel. Everyone who worked on *Trevor McFur* knew the game was a total stinker, and the development environment made [finishing] even such a lame game nearly impossible. [It] was so hostile and adversarial [at Atari, that everything] took eight times longer. If that hadn't been the case, Atari might still be in business."

Engel was much calmer with his appraisal of the Jaguar situation. "They helped occasionally but mostly ignored us. I could write reams of stories about them, but I don't want this article to turn into a bash-fest. They did do some positive things. They deserve credit for sending us a devkit when we were starting out and had no reputation as a developer."

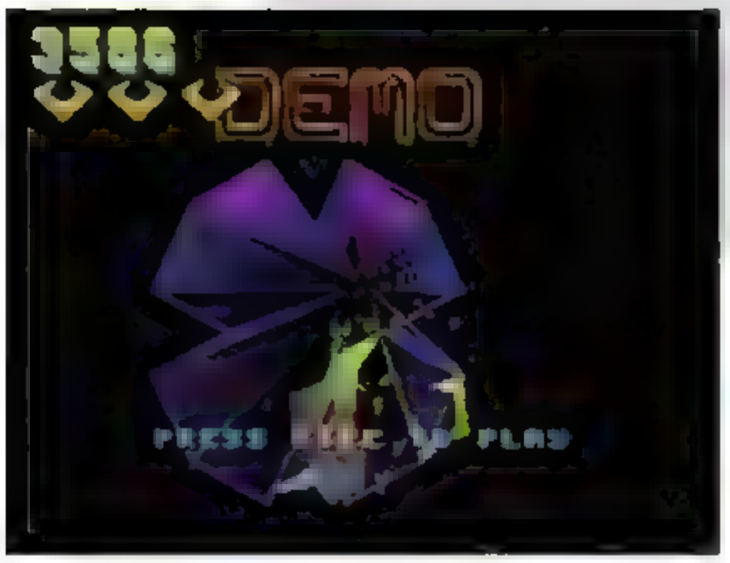
But all of the above is the American side of events. The UK branch was run very differently by Daryl Still. "It was a real mixed bag of emotions, because the buzz was huge, the excitement terrific, but the frustration of not receiving inventory was soul destroying. There were some tremendously talented people there. Really committed people who just thrived upon working with great product, and there was no doubt that Jaguar was a potentially huge piece of hardware. We had total autonomy over how we ran things in Europe. The biggest problem was the US office couldn't see beyond their own markets and pretty much dominated the available inventory. This was a historical problem,



Innovative and hugely anticipated, the eventually cancelled *Black Ice White Noise* would have played like a cross between *Shadowrun* and *GTA III*

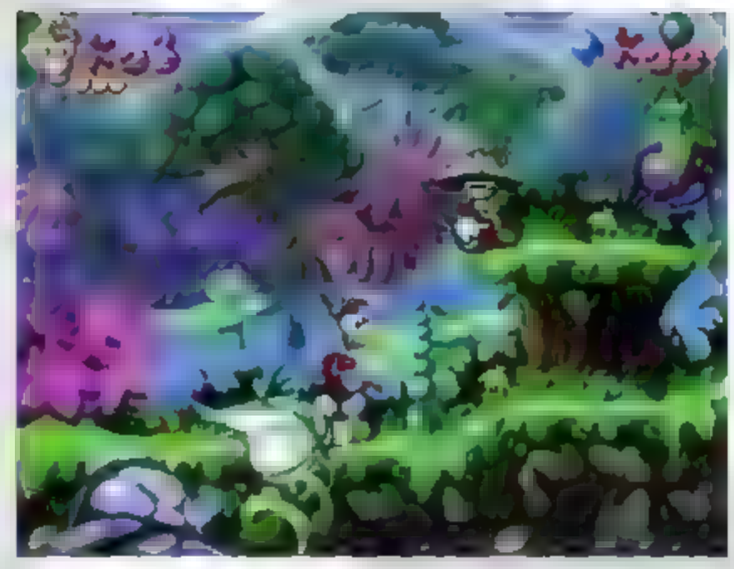
Above: For the Global Gaming fans. One of many two-page Jaguar adverts found in Korean magazines. **Below**: Destroy entire cities with aplomb, in the German developed *Iron Soldier*, the sequel was later released on Jag CD

Information on dedicated Jaguar magazines is scant, but there were several inserts provided free with other mags



Along with *AVP*, Jeff Minter's *Tempest 2000* is rightly heralded as one of the finest games on the Jaguar

Not only is the post-mortem-released *Gorf* for the Jag CD arcade perfect, but it also helped re-invigorate the independent development scene



Ubisoft's sumptuously wonderful *Rayman*, which, according to sources, began life on Jaguar as a proposed exclusive

dating back to the ST. If the US had learned from our [European success with the ST], and given us equal status with inventory and budget, I believe Atari could [have still been a] hardware force today. We produced some great hardware in those days, and backed them up with some super (and some less super) software titles, and I believe, by default, we set a number of practices that people like Sony learned from – both how to and how not to do things."

DEFENCE AND ALLURE

At this point Karl Morris, who runs **www.atari-explorer.com** and went to great lengths to assist in this article, speaks in Atari's defence while also providing scans of their financial documents on his website. "With respect to yet more Tramiel bashing, I hope this doesn't seep into the article. Mistakes were made by Atari, but it was imperative the system launched in 1993. Atari pulled out all the stops to ensure Jaguar was a success. To say Atari was putting all its eggs into one basket is an understatement; Jaguar had to work or it was curtains for the company. To bash the [Tramiel] management who were working on thin-air budgets with a one-way-ticket product is silly. It's easy with hindsight to suggest what should have been done. Great people worked there and got behind the product 100 per cent; they all knew what was at stake, and when it started to go wrong and the numbers weren't adding up, and [Sam] had a heart attack, Jack came back and did what any sane person would do – protect his family's interests. The Jaguar is a fine piece of hardware, unfortunately the gamble didn't work out for Atari. Let's not harp on about how "the Tramiels killed the Jaguar" when it was [they] who made it happen."

Even with such debate, the atmosphere is forever jovial and amicable, which many declare is part of the allure. Jaguar fans are a relaxed close-knit group – as the regular JagFests stand to prove. I enquire further, about passionate support for a dead system. High-profile collector Jason Smith comments: "I think the primary allure of the Jaguar is that it was Atari's final system. Atari has a huge following and the Jaguar, without question, was its most powerful offering. Another part for me is all the amazing hardware they were working on that actually became 'working' prototypes. The Jaguar VR, Cortina Jaguar Voice Modem, and so on. They were way ahead of their time."

Another big reason, and one that makes it worth tracking down today, is the continued release of games and independent development community that exists. Dreamcast and Jaguar coder Mickey McMurray reflects: "The biggest draw to the Jaguar is the fact that [it was] made an open system. The documentation, tools, and encryption keys are all available legally for anyone who wants them. Since the Jaguar is free for anyone to tinker with, people can release software, hardware modification and add-ons without fear of legal problems. The JagFests are successful because of this, they have new games and hardware to keep Jaguar fans coming back."

This raises a fascinating precedent since in 1999 after petitioning, Hasbro Interactive officially and commendably released the rights to Jaguar. Something unthinkable to other hardware companies. More importantly, the encryption keys to both cartridge and CD games were discovered by Curt Vendel of the Atari Museum, hidden on long-forgotten Atari floppies that were sold after the collapse. Now anyone can develop games, especially on CD, that will run on unmodified machines. This makes owning a Jag CD essential as many modern releases are on disc.

As well as coding their own projects and unlocking the system's true power, the fans petitioned companies like Telegames to publish stillborn titles. During collapse, Atari was sitting on dozens of fantastic, though sometimes only semi-complete games, many of which it's argued would have saved Atari. With no licensing restrictions the community has been, and will continue to be finishing these games themselves, then releasing them. Hence why some titles only came out in 2000 and beyond. Unfinished prototypes are also released.

The JAMMA Joystick, by Dan Loosen of **goatstore.com**, is just one of many hardware pieces designed, manufactured, and distributed by fans

"WITH SO MANY DEVELOPMENTS IN RECENT YEARS, THERE HAS NEVER BEEN A BETTER TIME TO INVEST IN A JAGUAR"

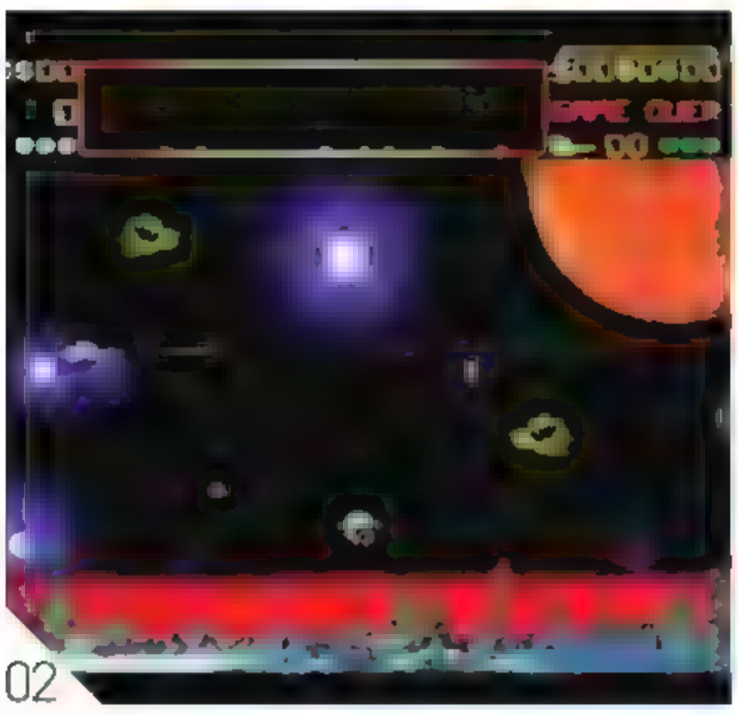
With countless proto CDs in his possession, Jason Smith set about making compilations and distributing them among fans. This is another highlight of the community. While unreleased Dreamcast prototypes bit-rot in the hands of private collectors, Jaguar fans, for the most part, happily share things. Which is why *BIWN* is freely available on the internet and why all profit made on *Battlesphere* was donated to charity. With so many developments in recent years, there has never been a better time to invest in a Jaguar. With a strange sense of bitter irony, the Jaguar only truly came to life after its death.

SPECIAL THANKS
Jaguar Sector II and **http://www.jaysmith2000.com** for providing developers' contacts, Karl Morris of **www.atari-explorer.com** for donating several images, and **www.goatstore.com** for assistance

JAGUAR PERFECT TEN GAMES

Atari's Jaguar had so much untapped potential that it pains us to see it so openly scorned by the majority of gamers nowadays. Those in the know however are fully aware of the great games the system boasted and here is a choice selection for you to go out and play

01



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BATTLESPHERE

- **RELEASED:** 2000
- **PUBLISHED BY:** SCATOLOGICAL
- **CREATED BY:** 4PLAY
- **BY THE SAME DEVELOPER:** SCATBOX HARDWARE ACCESSORY

01 The epic space opera *BattleSphere* is a triumphant example of what the Jaguar is truly capable of. It's filled with clever references to popular sci-fi creations and you choose one of seven known intergalactic races (including humans) before being placed in a fully 3D sphere of space and battling it out to become champion. Visually nothing short of stunning, the dynamic AI also impresses and for a time was unsurpassed. It's also one of the few games that supports up to 32 simultaneous human players over a network (although you're going to have to find a convention in order to experience this. As a kind gesture, all profits from sales of the game were donated to charity. And thanks to the official *Battlesphere* website for providing our images.

PROTECTOR SE

- **RELEASED:** 2003
- **PUBLISHED BY:** SONGBIRD PRODUCTIONS
- **CREATED BY:** JEREMY
- **BY THE SAME DEVELOPER:** PROTECTOR

02 If you're looking for a superb update of *Defender*, it's this excellent offering from Songbird Productions that you should be searching out and not Jeff Minter's *Defender 2000*. The graphics truly are stunning and feature some of the best 2D visuals we've ever seen on Atari's 64-bit console, hell, any console from that period for that matter. Sound is also excellent, with a great array of sampled voices and some rocking tunes that perfectly capture the frantic on-screen action. Insanely fast, full of excitement and sporting some very nifty power-ups, this is a perfect example of twitch gaming and deserves to be in every Jaguar owner's collection. If you're a fan of Eugene Jarvis's original game or just love a good blaster, pick it up. You're not going to be disappointed.

TEMPEST 2000

- **RELEASED:** 1994
- **PUBLISHED BY:** ATARI
- **CREATED BY:** JEFF MINTER
- **BY THE SAME DEVELOPER:** DEFENDER 2000

03 Jeff Minter's *Tempest 2000* is justification enough for picking up Atari's ill-fated console. Beautiful to look at, incredible to listen to, witnessing *Tempest 2000* in action is the equivalent of having a synapse explode in your brain, such is the impact of Minter's masterpiece. Forget the incredibly poor port of the original arcade game that has been included and just concentrate on spending all your spare time with *Tempest Duel*, a gripping deathmatch for two players, and of course, the stupendously good *Tempest 2000*. With new enemies, the ability to jump, a selection of smart power-ups, scintillating sound and those eye-melting visuals, this is perhaps Minter on his finest form. Luckily this is one of the most common Jaguar games available, so it won't cost you an arm or a leg.

GORF CLASSIC (CD)

- **RELEASED:** 1994
- **PUBLISHED BY:** MIDWAY
- **CREATED BY:** JAMIE FENTON
- **BY THE SAME DEVELOPER:** NA

04 The original arcade version of *Gorf* was developed by Jamie Fenton and released in 1981, featuring five progressive and very different levels, as well as several digitised voice samples that heckled the player. The Jaguar CD port by 3D Stooges, which was created after the system's unfortunate demise and rekindled the development community, has the honour of being the only arcade-perfect port to home systems that has all five of the original levels (due to licensing issues, the third *Galaxians* level was normally removed). Unfortunately due to popularity and a low print run this is now fairly rare and expensive on eBay, so if you intend to track it down, make sure you're carrying a full wallet. *Gorf Classic* is a fun and frantic shooter that you'll return to again and again.

IRON SOLDIER I/II

- **RELEASED:** 1994 / 1
- **PUBLISHED BY:** KATAX / TIGER GAME
- **CREATED BY:** ECLIPSE SOFTWARE
- **BY THE SAME DEVELOPER:** NA

05 We're mentioning both *Iron Soldier I* and *II* as they're perfect examples of what the Jaguar and Jaguar CD could do in capable hands. Both titles require you to storm around in a huge mech and lay waste to whatever is foolish (or unfortunate) enough to get in your way. Each game features expansive environments (although the CD version has greatly improved visuals and a storming soundtrack), a variety of well-structured missions and some of the most amazing explosions in any Jaguar game. Some may baulk at the slow pace of both games, but with so much to learn (*Iron Soldier II* boasts even more controls than the already comprehensive original) you'll actually be glad you have some time to think.

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ALIEN VS PREDATOR

- **RELEASED:** 199
- **PUBLISHED BY:** ATARI
- **CREATED BY:** REBELLION
- **BY THE SAME DEVELOPER:** SNIPERELITE

06 Never mind the fact that *Alien Vs Predator* was released a good 12 months after being a supposed launch title, it was a landmark game for both the Jaguar and first-person shooters in general, thus making it more than worth the wait. While *AVP* boasted spectacular visuals, which still impress today, it was the sound that truly impressed. With no music, creators Rebellion used a selection of screams, explosions and gunshots to punctuate the silence of each well-constructed stage. It was in the gameplay that *AVP* truly excelled though, and while the floaty controls could be annoying, the different attributes of the three main protagonists – human, alien or predator – and strategic gameplay more than made up for it

HIGHLANDER (CD)

- **RELEASED:** [illegible]
- **PUBLISHED BY:** ATARI
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** N/A

07 The Jaguar and CD add-on were starved of traditional adventures and RPGs (the only other notable exception being *Towers II*, though that's a fairly boring dungeon crawler). So adventures like *Highlander*, which was exclusive to the system, are something to get very excited about indeed. Based not on the films franchise – which was killed by three totally unnecessary sequels – but rather the animated TV series you play Quentin MacLeod on his quest against rogue immortal Kortan. Controls are comparable to *Resident Evil*; you're able to defeat enemies using fists, swords, or a gun while searching for items that allow progress. Highly recommended, the only problem is needing a MemoryTrack peripheral in order to save. A unique and enjoyable title that's well worth tracking down

RAYMAN

- **RELEASED:** 199
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

08 Decent platformers are few and far between on Atari's Jaguar, so when a title with the quality of *Rayman* comes along you can't really afford to miss it. Originally created exclusively for Atari's machine (it was later ported to the PlayStation and other consoles like the Saturn) Michael Ancel's platformer still looks sumptuous and boasts some utterly stunning locations. Filled with layer upon layer of parallax scrolling and beautiful, hand-drawn sprites it's an amazing technical achievement and perfectly shows off previous claims about the Jaguar's 2D power. Despite the game's toughness there's no denying the adorability of *Rayman* and it's little wonder that Michael Ancel's creation is still appearing in games today. Indeed, Ubisoft even released a couple for Nintendo's Wii

BI/WN (CD)

- **RELEASED:** [illegible]
- **FREELY RELEASED BY:** [illegible]
- **CREATED BY:** ATARI
- **BY THE SAME DEVELOPER:** DONKEY KONG

09 *Black Ice/White Noise* was not officially released due to being cancelled before completion, but since it was such an ambitious title and because the beta can be freely downloaded online, we thought it must be mentioned. Having read the full and unedited Jagwire interviews with the developers, its history alone warrants several articles. The team had a unique vision, which today is comparable to a cross between *Shadowrun* without magic (or, more accurately, *Neuromancer*) and *GTA III*. Players would have been able to traverse a massive cityscape while completing missions, riding vehicles, shooting police, hacking computer networks, talking with NPCs, and so on. Sadly among other things, overly high ambitions killed the project.

MISSILE COMMAND 3D

- **RELEASED:** 199
- **PUBLISHED BY:** ATARI
- **CREATED BY:** VIRTUALITY
- **BY THE SAME DEVELOPER:** N/A

10 Despite the Jaguar's VR Headset never getting released, Atari still saw fit to release *Missile Command 3D*, which featured a VR version of the game few Jaguar owners will have been able to play. Apart from this obvious oversight, the VR version in particular is great fun to play and gives you a clear example of just how immersive the game would have actually been. Starting off in an underwater base, you'll soon progress above ground and into space itself. All the while missiles are furiously raining down on you and despite the first-person viewpoint it perfectly captures the essence of the original game. Speaking of the original, Virtuality also included it, but as with the Tempest seen in *Tempest 2000*, it was a far from perfect port

SEGA SATURN

SEGA'S 32 BIT MACHINE IS WIDELY VIEWED AS SOMETHING OF A DISASTER, BUT WHILE IT MIGHT NOT HAVE SET THE WORLD ALIGHT IN TERMS OF SALES, THE CONSOLE WAS A VERITABLE TREASURE TROVE OF CLASSIC SEGA GAMING GOODNESS THAT, FOR THOSE WHO CHOSE TO EMBRACE IT, WAS A PEERLESS CONSOLE

It's not often that you can say of a console that it mimics – for better or worse – the very attributes its parent company displays, but the Saturn is such a machine. On the one hand, the Saturn very much reflects the corporate ineptitude and lack of unity that blighted Sega at the time (and indeed its relative failure at market was a major contributor in Sega's eventual pull-out from the games market barely more than half a decade after it launched), boasted one of the most complex system architectures around (and whose predominantly 2D orientation was at loggerheads with the three-dimensional shift the industry was undergoing at the time) and an array of games that was out of touch with what mainstream consumers wanted. On the other hand, for those who appreciate Sega's unique style of games – especially its arcade wares – along with the efforts of the Saturn's few, staunchly loyal third-party supporters, there will never be another console quite like Sega's 32-bit machine

TROUBLED BEGINNINGS

In a trend that would set the tone for the console's traumatic life, the Saturn was born into a Sega family beset with problems. Despite the successes of the Mega Drive – predominantly in the West – Sega's management had increasingly fallen out of touch with the demands of both the market and the industry

The Saturn started out life in the early-Nineties deep within Sega of Japan's Research and Development department. Originally going under the working title GigaDrive, the machine was essentially designed to be a 2D powerhouse of a console with secondary 3D capabilities using CD-ROM technology and would have sat, performance wise, somewhere between Sega's System32 and Model 1 arcade boards While this might have seemed like a suicidal prospect at the time, Sega's thinking did have a certain degree of logic to it. The first consideration was the cost of the machine. Sega's Model 1 board – which by the end of 1993 was wowing gamers with the likes of Yu Suzuki's *Virtua Racing* and *Virtua Fighter* – was very expensive, as was proving the attempts to shoehorn 3D graphics into console gaming, either in the form of chips-in-carts (such as Sega's SVP chip that was used in the Mega Drive port of *Virtua Racing* or Nintendo's Super FX Chip) or upgrade modules such as the 32X, while not achieving arcade perfection. The second was the concern that the market might not be ready for three dimensions yet, with the rapid failure of the 3DO – the first 'next gen' machine to hit the shelves – appearing to vindicate Sega's management

With GigaDrive, Sega thought it had found the ideal solution to this: create a machine that could handle Sega's Model 1 games,

Switch Or Chip?

In terms of modding, the Saturn remains one of the most modification friendly machines out there. In principle, there are two main types of mod: the first is the double switch, the second the mod chip. The former sees two switches getting installed on your machine: one allows you to select between PAL, American, Japanese and Japanese 2' (allowing you to select English language options in certain games), and the second is a 50/60Hz switch. In the case of mod chips, these will allow you to play pirate games. However, these games will still be region encoded so a Japanese pirate copy won't boot on a chipped PAL Saturn without a region decoding cart or switch

"IN A TREND THAT WOULD SET THE TONE FOR THE CONSOLE'S TRAUMATIC LIFE, THE SATURN WAS BORN INTO A SEGA FAMILY BESET WITH PROBLEMS"

Year released: 1994

Original price: £399.99 (UK), $399.99 (US), ¥44,800 (Japan)

Buy it now for: £10-£150 (depending on model)

Associated magazines: Sega Saturn Magazine, Mean Machines Sega, Edge, Sega Power, Saturn Power

Why the Saturn was great... Despite the errors that saw Sega build the Saturn as a predominantly 2D machine, for fans of Sega's unique style of game – especially its arcade wares – the Saturn remains the only place to enjoy the works of Sega's internal development teams at a time when they were arguably at their creative peak.

SEGA SATURN

Games like *Virtual On*, with heavy Japanese styling had limited appeal in the West, but it doesn't mean they weren't amazing

"WITH A PRICE POINT WAY BEYOND MOST GAMERS' MEANS AND LAUNCHING DURING THE GAMES INDUSTRY'S QUIET TIME OF SUMMER, THE MOVE BACKFIRED HORRIBLY"

Lobotomy

While most of the Saturn's best games came from the Land of the Rising Sun, the West wasn't without its star developers. Case in point, Lobotomy. While it was tough leaving *Death Tank* and *Exhumed* off our list of top ten games (see page 210), the impact the developer had on the Saturn shouldn't be underestimated, with its SlaveDriver engine used in *Exhumed* going on to power the Saturn ports of *Quake* and *Duke Nukem 3D*, arguably the best console ports of either game on any of that generation's machines.

Virtua Fighter aside, the Japanese launch line-up was total crap. Take the abysmal *Gale Racer* for example

but focus predominantly on 2D games ready for a Japanese launch in late-1994. Unfortunately, Sega's efforts couldn't have been more misplaced. A year before the launch, Sony Computer Entertainment formally announced that it intended to enter the console market with a 3D-capable machine that not only knocked the Saturn into a cocked hat, but also blew the Model 1 board that gamers had been swooning over away. Sega was in major trouble.

The result was a complete redesign of the Saturn. Out went the simplistic single processor that had been intended, and in went two SH-2 RISC processors, along with dual VDPs in a bid to create a machine that was capable of 3D performances somewhere between the Model 1 and the all-new Model 2 board that was being prepared to launch with *Daytona USA*. Suffice to say, it was a tough haul, and this showed when the console launched on 22 November in Japan, with a launch line-up that included such abysmal efforts as *Gale Racer* (known as *Rad Mobile* in the West), it all meant that Sega needed a seriously big game to wow the Japanese punters – and fortunately, it had just that. While Yu Suzuki and his AM2 team had enjoyed fame before with the likes of *OutRun*, AM2 had really shot to fame with the Model 1 arcade board, first with *Virtua Racing*, then *Virtua Fighter*. Using realistic physics to heighten the perception of realism, *Virtua Fighter* in particular had been impressing arcade-goers ever since its 1993 debut. Not surprisingly, Sega ensured that the Saturn port of the game was ready to go when the console launched in November, with the console selling 250,000 consoles in just two days.

While the following months saw the figures tail off, it left Sega free to plan the Western launches, but this presented its own problems. High price points and a general disinterest in next-gen formats had already effectively accounted for the 3DO and Atari Jaguar by 1995 (both were still being supported but the writing was clearly on the wall) in the West, and Sega of America boss Tom Kalinski felt it wasn't the time to launch a new console while 16-bit sales were still strong (a view that would later be confirmed, as 16-bit sales remained strong for well over another year). However, Kalinski's political stock within the company had taken a major knock with the rapid failing of the 32X (something that would also not be helped by the launch of a new, more capable console), and with Sega of Japan keen to beat the PlayStation to market, the Western launches of the Saturn were pushed through as a matter of urgency.

It was a disaster. The Saturn launched on 27 April 1995 in the U.S, and then on 8 July in Europe. With a minimal amount of fanfare, games and consoles simply arrived on the shelves and in some countries,

Team Andromeda's *Panzer Dragoon* franchise wasn't a huge seller on the Saturn, but was still an amazing series

neither the specialist press nor the media at large were sent review material, from one day to the next, the Saturn simply arrived

The games were a mixed bag as well Whereas Sony had been hyping up *Ridge Racer*, *Toh Shi Den* and other texture-mapped 3D games ahead of the PlayStation's launch, the highlights of the Saturn's launch were the 'raw' polygonal *Virtua Fighter* (bundled with machines) and a port of *Daytona USA* that AM2 had hurriedly ported in under six months. With a price point way beyond most gamers' means (£399 in the UK and $499 in the USA) and launching during the games industry's quiet time of summer, the move backfired horribly

THE 'BIG THREE'

As Christmas drew closer, things were looking perilous for Sega The PlayStation launch came and went, and – adding further weight to Kalinske's argument that the West wasn't ready to go next gen – failed to really attract the huge sales Sony had wanted (and spent large amounts of market cash on chasing), Sega needed some big hits, and it looked like it was going to get them

Thanks to the initial rush to redesign the console, the first generation of games had to be rushed through. However, by September 1995, Sega of Japan's teams had taken a year to perfect their techniques and most importantly, had some great games they could try them out on During this time, Sega's Model 2 board had become the arcade hardware of choice for the arcade department, and its two top studios, AM2 and AM3, had three games ready for porting. The first to make it was AM2's *Virtua Cop*. The lightgun game had been struggling since its heyday in the Eighties, and AM2 saw the chance to reinvigorate it with *Virtua Cop*, a game that was as much about precision as raw adrenaline The second AM2 title was *Virtua Fighter 2*. With the success of the *VF1* undeniable, a sequel was inevitable and Suzuki's team managed to deepen the game and increase its fluidity to the point where it seemed further improvements would be impossible The third game in the queue was AM3's *Sega Rally*. The brainchild of Tetsuya Mizuguchi, the game was about as far removed from *Daytona USA* as you could get, attempting to create a deep rally game that was realistic enough to the point of being convincing, but without making things overly complex. In short, the ports were a complete success Technically as well as in gameplay terms, there was nothing on any console to touch them at the time, and while *Sega Rally* and *VF2* would miss Christmas in Europe, it didn't stop *Sega Rally* setting a record for the fastest selling CD game in the UK, and global sales for the Saturn finally started to catch up with those of the PlayStation

THE BEGINNING OF THE END

With the Christmas period a comparative success, Sega was upbeat going into 1996 At E3 that year, Kalinski announced that "Sega games would be the success of 1996", and on paper he should have been right. The Saturn's line-up for the year was strong, including a new *Sonic* game, *NiGHTS*, a new *Panzer Dragoon* title, *Virtua Cop 2*, a reworked *Daytona* and *Fighting Vipers*, but it didn't end there. Sega also took the wraps off its new analogue controller (due to be bundled with Yuji Naka's *NiGHTS*) and Sega also used E3 to unveil its NetLink modem and internet service, which was expected to debut in the States that autumn for $199 and, by offering an affordable internet access machine, helped Sega sell the 1.5 million consoles it was aiming for in 1996, as would aggressive price cuts on the hardware And with much hype surrounding the Model 3 board, Kalinski also used E3 as a platform to announce Yu Suzuki's third game

Sadly, things didn't go according to plan. Consumer interest was changing. While arcade ports had been fine before then, gamers were expecting more – and the PlayStation was delivering that in spades No better is this demonstrated than with *Formula One*. Both Sony and Sega had acquired licences for the 1995 season, but whereas Sega squandered its licence on a rather tame arcade-style racer called *F1 Challenge* (or *Live Information* as it's known in Japan) that only featured a handful of playable cars and tracks (of which only three were real) Sony entrusted Psygnosis with its licence, who in turn enlisted the help of Bizarre Creations to create an in-depth *Formula One* sim that attempted to re-create the whole season. While Sega's game launched first, it barely managed to register on the sales charts, whereas *Formula One* became Europe's bestselling game of 1996 and finished second in the global sales charts to another PlayStation title, *Final Fantasy VII*

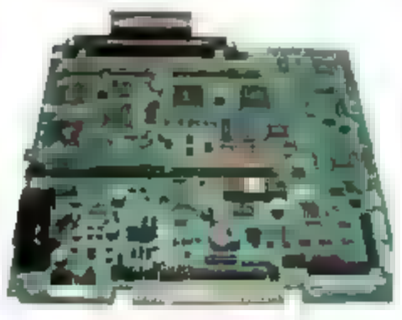
It wasn't only here that Sega squandered chances. *Tomb Raider* had been knocking around on release schedules as far back as the 32X, and given Core's strong relationship with Sega, it came as scant surprise that Lara Croft first debuted on the Saturn. Not only did Sega

While best known for its racers, AM3 a *Last Bronx* was an interesting alternative to AM2's beat-'em-ups

Saturn Bomberman featured ten-player support, although you needed a really big screen to enjoy it properly

ST-V Titan

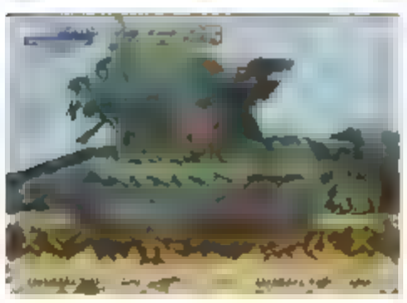
One aspect of the Saturn that's frequently overlooked is the ST-V Titan arcade board. Essentially a Saturn with a bit more RAM, the ST-V failed to be as successful as its successor the NAOMI, but did have an impact nevertheless. Sega itself used it for *Dynamite Deka* (aka *Die Hard Arcade*, AM1, along with *Decathlete* (*Athlete Kings*, AM3) and *Winter Heat* (AM3 while smaller arcade companies such as Treasure (*Radiant Silvergun*) and Raizing (*Sorkyugurentai*) were also able to use the board as well. The fact the board was based on the console allowed for much easier console ports



Even though the machine is widely regarded as a 2D powerhouse, the Saturn was capable of great 3D graphics.

Compared with the game that immediately preceded it, *Virtua Fighter 2* was a technological miracle and played fantastically

SEGA SATURN



In subsequent years, SNK jumped on board the Saturn bandwagon with its 1MB RAM cart, which allowed for *Metal Slug* to be ported.

"WHEN SONIC X-TREME WAS ANNOUNCED AND DEMOED AT E3 1996, SUCH WAS THE BACKLASH THAT SEGA ULTIMATELY QUIETLY DROPPED THE GAME"

squander a chance to make a fuss about this (a mistake Sony did not make), the fact the subsequent PlayStation version looked better added fuel to the argument that the PlayStation was the better machine. This was also true of the ports of Psygnosis's two big PlayStation launch games, *WipEout* and *Destruction Derby*. When it was announced that both games would receive Saturn conversions along with some of Psygnosis's other PlayStation titles, it seemed like Sega had pulled off an elaborate coup, but ultimately the delays and subsequent poorer port qualities meant neither game aided the Saturn's cause.

However, it wasn't just Sony to blame in this. Sega's reliance on arcade ports at a time when the first dedicated console games were coming through did nothing to endear the console to gamers, especially when its next big round of conversions – *Fighting Vipers*, *Virtua Cop 2* and *Daytona USA CCE* – were arguably weaker games than the 'Big Three' that had preceded them 12 months earlier.

To compound this, Sega's own console-specific stuff failed to register with the punters. While both exquisite titles that still hold up well today, both *NiGHTS* and *Panzer Dragoon Zwei* failed to sell the console. And what of *Sonic*? When *Sonic X-treme* was announced and demoed at E3 1996, such was the backlash that Sega ultimately quietly dropped the game and started work on a high-resolution port of Mega Drive game, *Sonic 3D Blast*.

Later titles like *Soukyugurentai* from small developers like Raizing helped keep Saturn fans stocked with good videogames to play.

1997 – THE END IS NIGH

Having been pushing Sony hard 18 months earlier, as 1996 rolled into 1997, it became clear that Sega had virtually conceded the market to Sony, with Nintendo second in line to scoop up whatever remained.

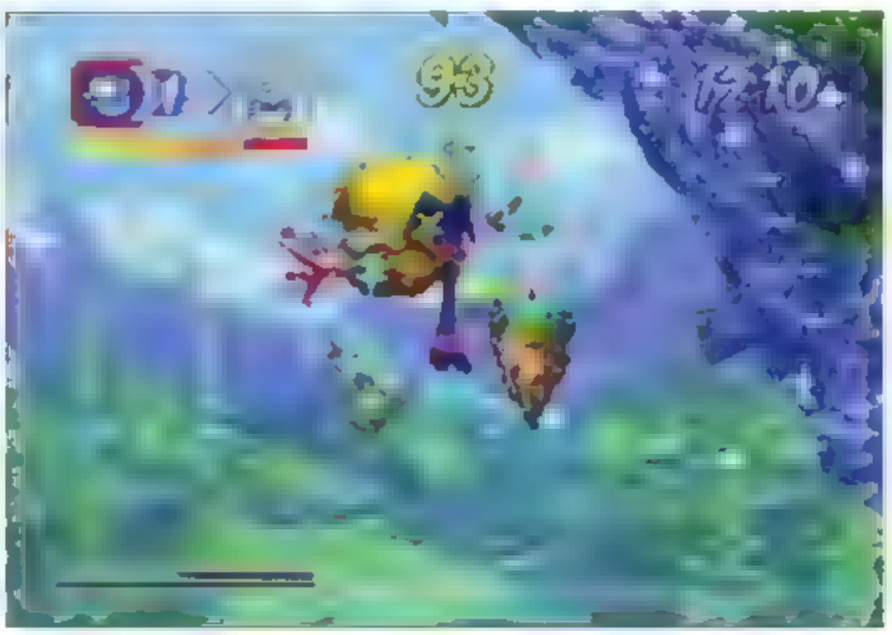
With Sega's proposed merger with Bandai rapidly collapsing and the company busy with the Dreamcast – the hardware was already being demonstrated behind closed doors at E3 – 1997 took on the form of one final hurrah for the Saturn. Typically, this took the form of more arcade ports – *Manx TT*, *Last Bronx*, *Marvel Super Heroes* and an assortment of ST-V ports being the most high profile – but would also see some interesting new additions. The biggest factor was *Sonic*'s long-overdue arrival on the console. The first game, *Sonic 3D Blast*, was a glorified hi-res port of the Mega Drive game, whose main highlight was, bizarrely enough, the CD soundtrack crafted by Sega of Europe's in-house musician Richard Jacques, but this was just the start. During the summer, Sega launched, *Sonic Jam*, a retro pack with the four Mega Drive games and a 3D 'Sonic World' where Sonic could run around and perform various tasks as a conceptual demonstrator for what would later become *Sonic Adventure* on the Dreamcast. This was followed by *Sonic R*, which was developed by Traveller's Tales who had done *Sonic 3D Blast*, and was a platform-based racing game that while perhaps not the greatest game ever, was a wonderful technological showcase for what could be done on the Saturn.

With the much talked-about *VF3* port (with or without upgrade cart) seemingly dead in the water, AM2 signed off from the Saturn in style with *Fighters MegaMix*. Based on the *Fighting Vipers 2* engine and gameplay mechanics, the game merged *VF2* and *Fighting Vipers* characters (along with assorted other AM2 characters) in a colossal fighting game that came very close to eclipsing *VF2*.

Likewise Lobotomy, who had pulled off the very impressive *Exhumed* the year before, was entrusted to port over PC hits *Duke Nukem 3D* and *Quake*, a task it proved more than capable of.

By the end of 1997, however, it became clear that Sega was done with the Saturn, with *Burning Rangers*, *Panzer Dragoon Saga* and *Shining Force III* the last games of note to be published by the company in 1998. However, this wasn't the end of things for the Saturn – at least in Japan. The machine's 2D power was more than capable of handling Neo Geo and CPS2 ports – especially when used in conjunction with RAM carts – allowing Capcom and SNK to port their more elaborate 2D games with a great degree of accuracy, while Tecmo was able to use the knowledge gathered by Sega to port across Model 2 game *Dead Or Alive*. The availability of ST-V boards also meant that smaller companies like Treasure and Raizing could continue to find a home for their games in the console market. Sadly, very few of the games released during 1998 made it out in Europe or the States, forcing many dedicated fans to turn to importing to get their gaming fix.

While the *Dead Or Alive* games are a household name now, Tecmo's beat-em-up started out its console life on the Saturn.

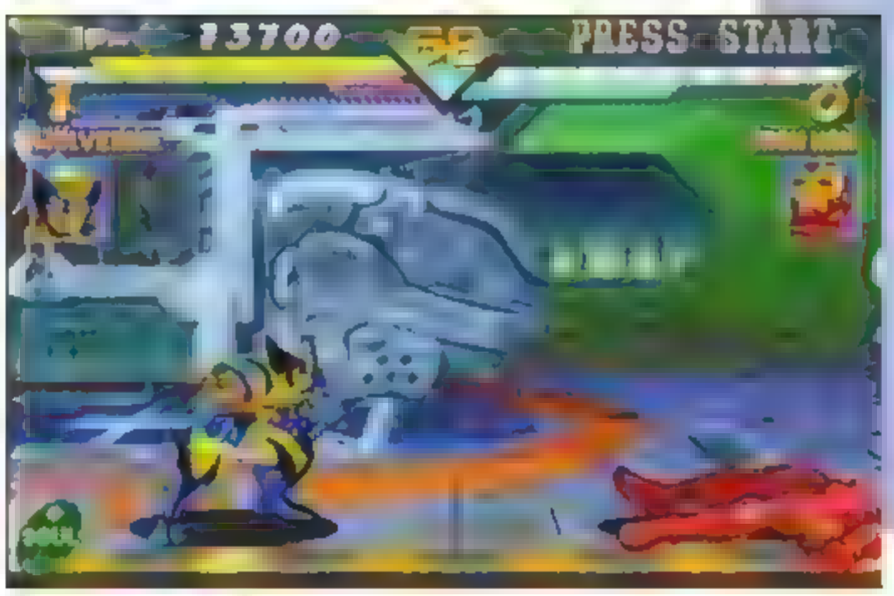


Sonic Team's *NiGHTS* is for many people the best game ever made – and with Sega's analogue pad, it's not difficult to see why.

THE HARDCORE CLASSIC

The opening page of the February 1997 issue of *Sega Saturn Magazine* states that "Owning a Saturn is making a statement," and from a gamer's point of view, this is almost certainly true. There's no denying the ineptitude of Sega's management during this time; in virtually every conceivable way, the machine was at loggerheads with what the market wanted (and for the most part received, courtesy of the PlayStation), and arguably, the precarious financial position the Saturn left the company in, along with the damage done to its reputation, put its successor, the Dreamcast, on the back foot before it had even launched.

But equally, there's no denying the excellence of the console's games. With the arcade heritage of both Sega and its key third parties, such as Capcom, SNK, Treasure, Raizing Tecmo and co – arguably at a time when they were all at their creative peak – it



The best of Capcom's two-dimensional wares were vastly superior on the Saturn compared to their PlayStation namesakes.

comes as little surprise that the machine's best software tended to find its origins in the arcades. While it should be pointed out that very few of the games themselves are exclusive to the Saturn in the traditional sense – even Sega converted its big Saturn ports to the PC using its ill-fated Sega PC label – such is the gulf in quality between the Saturn and other home versions that for most arcade gamers, there was only ever one machine worth bothering with. Even more so considering that certain ports were arguably better games than their arcade parents.

That's not to say there wasn't a great array of console-specific titles. The offerings of Sonic Team and Team Andromeda spring instantly to mind, with *NiGHTS*, *Burning Rangers* and the *Panzer Dragoon* trilogy all demanding of a place in any self-respecting Saturn collection, along with the excellent *Shining* games (Team Sonic), *Guardian Heroes* and *Silhouette Mirage* (Treasure), along with many others.

Even today, despite the widespread availability of sequels and re-releases on other formats, the Sega Saturn is still a worthwhile investment for those who appreciate the unique gameplay styles of the companies that supported it. In terms of dedication to delivering the most faithful experiences possible, especially arcade ports, the machine is still arguably peerless to this day, a state of affairs reflected in the cult status it deserves.

As such, the market for the console remains buoyant to this day, nearly a decade on. While the abundance of unwanted PAL machines and games can make the machine an attractive prospect, be warned: those wishing to get the best out of the Saturn must be prepared to invest handsomely. While several fancy limited-edition machines were released in Japan, our recommendation would be to pick up a 'double switched' PAL machine, coming with region selection and 50/60Hz selection switches to enable you to play imported titles and poorly optimised PAL titles in all their full-screen, full-speed glory. Such a machine won't cost much – indeed, it's possible to perform the modifications yourself using one of the many online tutorials, – but some of the rarer and more desirable games can fetch top prices these days, so be prepared to spend. Certain titles can now fetch upwards of £150.

However, if the particular type of game offered by the Saturn is your cup of tea, then it's ultimately worth it. While it would be foolish to pretend that the Saturn was anything other than a failure in the business sense, there'll probably never be a machine quite like it.

Virtua Fighter helped to fuel Saturn sales in Japan at launch, but was the only launch game worth writing home about.

NetLink Me Up

One of the least successful upgrades for the Saturn was its NetLink modem. Comprising of a 28.8KB/s modem and browser software, the service allowed for internet browsing and online gaming, although in the event, it never took off. A few games, such as online-enabled versions of *Sega Rally*, *Virtual On* and a few others appeared but the service never caught on and by the end of 1997 most developers had abandoned it in the US and Japan. Although that was one step further than it got in Europe. Sensing it would probably never catch on, Sega of Europe never released the modem or the software here.

GO EAST, YOUNG MAN

While the Saturn had a tough time in the West, it received plenty of support in Japan. Here are three of our favourite titles that never made it to Western shores.

Title: Princess Crown
Developed by: Atlus
Everyone knows the Saturn was capable of incredible sprite-based visuals, and *Princess Crown* is one of the best titles to highlight this fact. With multiple, enormous, fluidly animated characters moving and fighting each other all over the screen it's enough to melt the eyeballs. Gameplay was equally excellent, with plenty of variety. Playing one of several characters' quests, you roamed a fantasy realm fighting dragons, goblins, and other mythical creatures, using a unique *Street Fighter* style combat system. You could also cook food to make healing items. Awesome.

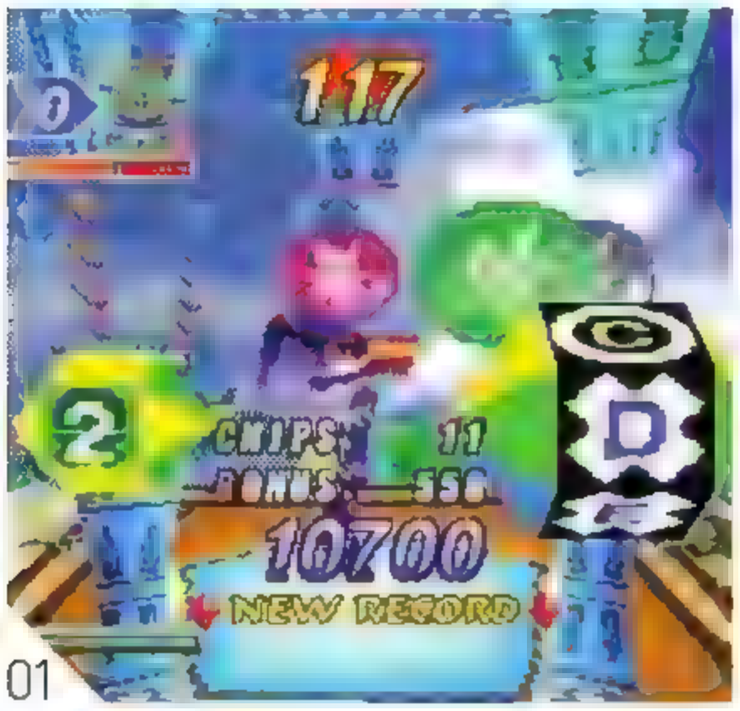
Title: Dracula X: Nocturne In The Moonlight
Developer: Konami
Thanks to flagging sales in the West, Konami's *Nocturne In The Moonlight* never appeared outside Japan. Essentially a beefed-up edition of *Symphony Of The Night* albeit with rougher visuals, slowdown, and lengthy loading times. *Nocturne* allows you to start play as one of three different characters – including Saturn exclusive Maria. It also has plenty of new weapons and even two new locations, The Cursed Prison and Underground Garden, to discover. Worth playing through even if you have already played the superior PlayStation version.

Title: Psychic Killer Taroumaru
Developer: Time Warner Interactive
It may indeed reach extortionate prices on eBay, but this superb effort from Time Warner Interactive easily justifies its £200+ asking price, if only so you can constantly gaze at its remarkable aesthetics. Filled with the sort of graphical trickery that wouldn't look out of place in one of Treasure's games, *Psychic Killer* is a stunning example of what capable designers could achieve with the Saturn's hardware. The game's not bad either, playing like a cross between early *Shinobi* games and *Alisa Dragoon*.

SEGA SATURN

PERFECT TEN GAMES

Forget the fact that it was an alleged nightmare to program and that it came a poor second to Sony's all-conquering PlayStation, there is still much to discover on Sega's (unfairly) maligned console. Featuring both jaw-dropping 3D titles and an eclectic range of 2D games, Sega's Saturn quite frankly has something for everyone



01

NiGHTS INTO DREAMS

- **RELEASED:** 1996
- **PUBLISHED BY:** SEGA
- **CREATED BY:** SONIC TEAM
- **BY THE SAME DEVELOPER:** BURNING RANGERS

01 It's difficult choosing just one of Sonic Team's Saturn titles, and we debated endlessly over this or *Burning Rangers*, but as *NiGHTS* is so unlike anything else and came out first, it had to go in. The gameplay basically involves flying around a pseudo-3D world, passing through rings to open the level exit. The atmosphere is surreal, but to reach that euphoric state you need to master the art of infinite looping: passing through rings quick enough to maintain the timer and effectively loop the level several times while generating insane scores. It doesn't click for everyone, but if your mind is expanded enough it's magical. Also, don't forget *Christmas NiGHTS*

SATURN BOMBERMAN

- **RELEASED:** 1997
- **PUBLISHED BY:** SEGA
- **CREATED BY:** HUDSON
- **BY THE SAME DEVELOPER:** ADVENTURE ISLAND

02 *Bomberman* is one of the greatest series ever created, and *Saturn Bomberman* is the pinnacle of the series. Every single post-Saturn iteration of the franchise generates the question: Is it as good as *Saturn Bomberman*? None are. The main reason is that it's the only version supporting ten simultaneous players on a single screen, which is pure nirvana. Another is that while most *Bomberman* games are fairly boring in single-player, the Saturn's solo mode is equally as good as the multiplayer. Beautiful anime cut-scenes, ingenious level design, interesting enemies and power-ups. Whether alone or in a group, *Saturn Bomberman* is awesome

02

GUARDIAN HEROES

- **RELEASED:** 1996
- **PUBLISHED BY:** SEGA
- **CREATED BY:** TREASURE
- **BY THE SAME DEVELOPER:** GUNSTAR HEROES

03 No other system at the time could do 2D like the Saturn, and the game exemplifying this was *Guardian Heroes*. Unlike *Final Fight*, which had a variable plane of movement, *Heroes* only had three planes where movement was restricted to left and right, with players needing to alternate between them. It ensured the fighting engine was precise, well defined, and unlike anything else. Treasure also blessed it with a fantastic anime intro, and dozens of frames of super-liquid smooth animation. Then there was the ability to collect extra characters to fight as, and even control a powerful undead warrior. Pure genius

SHINING FORCE III

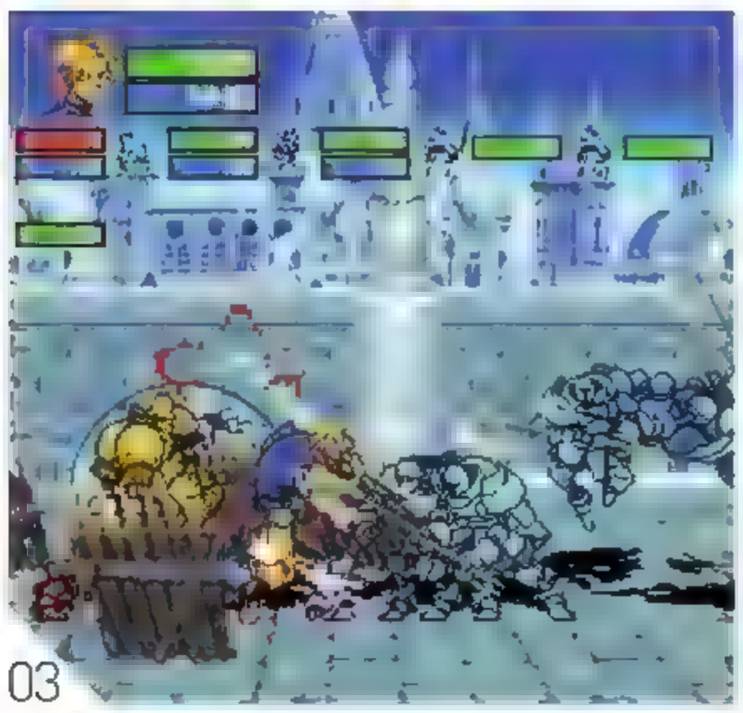
- **RELEASED:** 1997
- **PUBLISHED BY:** SEGA
- **CREATED BY:** CAMELOT
- **BY THE SAME DEVELOPER:** MAGIC TEAM

04 The *Shining* series has always been a favourite among Sega stalwarts and, after the Saturn's first-person-perspective *Shining The Holy Ark*, fans rejoiced that the series would return to its strategy RPG roots for the first time in 3D. The basic mechanics weren't a drastic departure from past instalments but there were several additions, such as the friendship system. Unfortunately, for all its excellence, it is also a source of annoyance for the Saturn community. Only the first of the proposed three-disc set was translated into English, with the second two only in Japanese

PANZER DRAGOON II: ZWEI

- **RELEASED:** 1996
- **PUBLISHED BY:** SEGA
- **CREATED BY:** TEAM ANDROMEDA
- **BY THE SAME DEVELOPER:** PANZER DRAGOON SAGA

05 We've already covered *Saga* under Why You Must Play, but *Zwei* is such a different experience, it's worth including another *Panzer* game. It's an on-rails shooter, which blends an unusual story line and etherea atmosphere with some intense action. Unlike contemporaries such as *Star Fox*, *Zwei* allowed the camera to be panned all around the dragon mount, and therefore fire at enemies coming from all directions. It also improved on the first by providing a devastating berserker attack. *Zwei* is remembered best for its wild set pieces and epic bosses


03

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05

06

SEGA RALLY CHAMPIONSHIP

- **RELEASED:** 1995 (UK 19[illegible])
- **PUBLISHED BY:** SEGA
- **CREATED BY:** AM3/CS TEAM
- **BY THE SAME DEVELOPER:** MANX TT SUPERBIKE

06 *Sega Rally* might have only had three cars and four circuits, but thanks to its endless time-attack options we're still struggling to put it down. The key to *Sega Rally*'s brilliance lies in its circuit design and handling. Singularly excellent, the two complemented each other and offered a game that was convincing to play, but thanks to a variety of different lines that could be taken through most corners and the precision needed to balance the cars on the edge, knowing that there was another tenth lurking in a given sector would keep you coming back for more.

07

VIRTUA FIGHTER 2

- **RELEASED:** 1995 (UK 19[illegible])
- **PUBLISHED BY:** SEGA
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** DAYTONA USA

07 While the Saturn didn't lack decent 3D fighters, none of them could hold a candle to *VF2*. While it wasn't the most accessible game to grace the console (arguably its only weakness), *VF2*'s perfectly weighted controls, fluid animation and sheer depth really set the game aside, and the stunning high-resolution 60fps visuals only helped sweeten the deal. While the AI was competent enough, *VF2* was always best enjoyed with a friend of roughly comparable quality, where learning a character and devising tactics accordingly in order to beat them became the order of the day – and it still plays like a dream now.

08

VIRTUA COP

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** AM2
- **BY THE SAME DEVELOPER:** [illegible]

08 Prior to *Virtua Cop*, the lightgun game had been stuck in the doldrums. However, Yu Suzuki's AM2 team saw the chance to revive it in 1994, and thus *Virtua Cop* was born. The port is about as faithful as you could hope, with all of the enemy attack patterns and locations re-created. While the game might seem sedate now – especially compared to the various instalments of *Time Crisis* or *House Of The Dead* – the score-attack-based gameplay that rewarded justice shots (shooting an enemy's hand, rather than killing him), the depth this allowed for was stunning, and it's still worth playing to this day.

09

RADIANT SILVERGUN

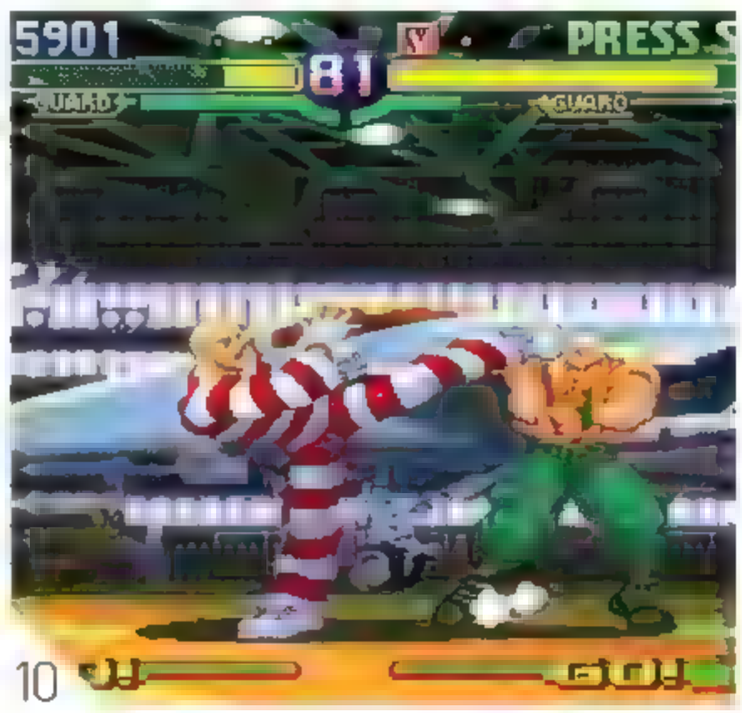
- **RELEASED:** 1998
- **PUBLISHED BY:** ESP
- **CREATED BY:** TREASURE
- **BY THE SAME DEVELOPER:** SILHOUETTE MIRAGE

09 There's a host of outstanding shoot-'em-ups on the Saturn, and while it's somewhat predictable that we've plumped for Treasure's opus, it so deserves to be here. Ported from the Arcade S-TV board, *Radiant Silvergun* is quite simple the pinnacle of Saturn shmups and is one of the most exhilarating shooters we've ever played. Beautiful in design, with an ingenious weapon system – you instantly start with a fully powered-up ship and must use the weapons to the best of your ability – *Radiant Silvergun* is a near-flawless experience that shouldn't be missed under any circumstances. Yes it's essentially nothing more than a souped-up boss rush. But, man, what a rush.

STREET FIGHTER ZERO 3

- **RELEASED:** 1995
- **PUBLISHED BY:** CAPCOM
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** [illegible]

10 Capcom was one of the Saturn's staunchest supporters and as a result there are a host of great beat-'em-ups available on the machine. While the likes of *X-Men Vs Street Fighter*, *Street Fighter Alpha 2* and *Marvel Vs Street Fighter* are all worthy of a mention, it's the Japanese-only *Street Fighter Zero 3* that's made our coveted Perfect Ten – mainly because until very recently it was the finest conversion of the game to ever appear on a home machine. That wasn't all, though, as Capcom included all the arcade's extra gameplay modes and a console-exclusive World Tour to ensure that arcade veterans had plenty to sink their teeth into.



10

"AS WITH THE PC-ENGINE, HUDSON PROVIDED THE CUSTOM CHIPSET WHILE NEC BROUGHT ITS CONSIDERABLE ELECTRONICS PRODUCTION EXPERIENCE TO THE TABLE"

PC-FX

AS THE 16-BIT GENERATION DREW TO A SLOW AND AGONISING CLOSE, THE INDUSTRY WITNESSED A CHAOTIC STAMPEDE OF SHINY NEW CONSOLES, SOME OF WHICH WERE MARKEDLY MORE SUCCESSFUL THAN OTHERS. DAMIEN MCFERRAN TAKES A LOOK AT ONE OF THE MORE HIGH-PROFILE BLUNDERS OF THE ERA

Year released: 1994

Original price: ¥50,000 (approx £240)

Buy it now for: £50-£100

Why the PC-FX was great... it may have lacked 3D power and was plagued with questionable anime software, but the PC-FX is still a firm favourite with serious retro collectors. FMV gaming may have been forgotten these days but NEC and Hudson's machine was the undisputed master of the medium, even managing to make the genre playable and entertaining. The limited library (coupled with the relatively unknown nature of the platform) makes this the ideal choice for budding retro connoisseurs with deep pockets who wish to dip their toes into the Japanese end of the market.

Complacency can be deadly. You only have to look at the changeover between the 16-bit and 32-/64-bit generations for confirmation of this fact. Amazingly, during this period of transition all of the established hardware manufacturers were caught with their trousers down while new boy Sony waded in and effortlessly mopped up their precious market share. Poor old Sega stumbled badly, first with the ill-advised 32X and then with the Saturn, and while Nintendo's fall from grace was slightly less pronounced few would have the confidence to declare that the N64 lived up to the lofty expectations established by the tremendous success of its predecessor, the SNES.

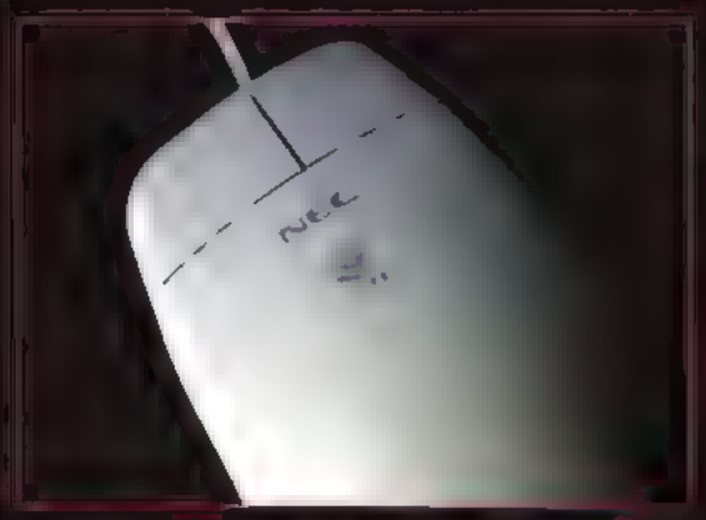
However, by far the most humiliating collapse was that of NEC and its cohort Hudson Soft. These two companies had previously worked together on the legendary 8-bit PC-Engine, which in Japan had managed to beat Sega's Mega Drive into third place and even went as far as to challenge Nintendo's previously unassailable dominance. Unfortunately, like their fellow rivals they drastically underestimated the challenge posed by creating a successor to such outrageously popular hardware.

But let's not get ahead of ourselves here; there's a history lesson to brush up on first. As previously mentioned, NEC and Hudson's partnership had proved to be a particularly profitable one and it was almost a given that the dynamic duo would collaborate on new projects together again. Work on what would become known as 'Tetsujin' (Iron Man in Japanese) commenced almost as soon as the Nineties had begun, with an official announcement coming as early as 1992. As had been the case with the PC-Engine, Hudson provided the custom chipset (which included five separate co-processors) while NEC would bring its considerable electronics production experience to the table.

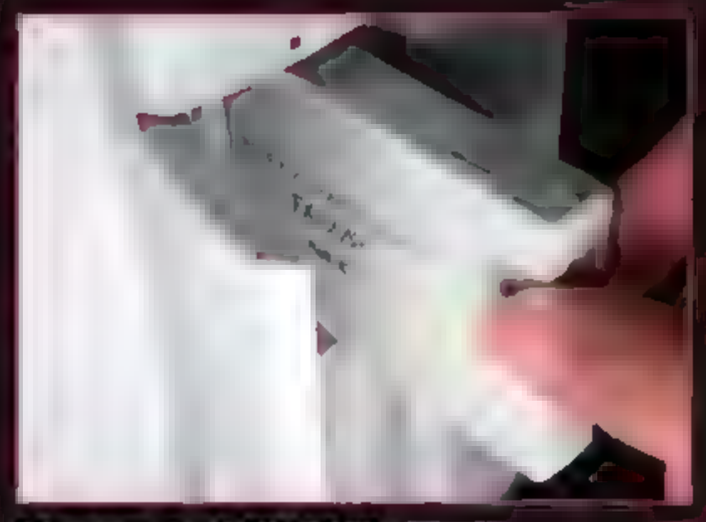
Tetsujin boasted fearsome specifications for the time. Not only was it to be CD-ROM based, it also contained a RISC processor clocked at 25MHz and was supported by 2MB of RAM to facilitate speedy CD access. The system also featured highly advanced 2D capabilities as well as support for full-screen 24-bit video playback. A prototype was demonstrated to selected parties in the same year, with three games being displayed. Two of these were merely tech demos but the third got delegates really hot under the collar; it was an updated version of Hudson's classic *Star Soldier*, which ran in what appeared to be full 3D. In reality it was actually displaying 3D objects over a pre-rendered background (the same technique employed by GameArts' *Silpheed* on the Mega CD and Namco's *Starblade* in the arcades), but it was more than enough to impress the assembled throng and with a successful demonstration of their new hardware out of the way NEC and Hudson feverishly worked on getting the new machine ready for release.

ACCESSORISE Three peripherals no PC-FX owner should be without

PC-FX Pad (FX-PAD)
A lovely six-button pad that is almost identical to the controller that came with the PC-Engine Duo RX. This is very comfortable and ranks as one of the finest pads of its generation. A shame hardly anyone got to experience it.



PC-FX Mouse (FX-MOU)
Compatible with only a handful of games, the FX-MOU still made many PC-FX gaming sessions more palatable. As was standard at the time, it only had two buttons, but that was plenty for the few games that supported it.



Memory Card (FX-BMP)
The PC-FX had 32K of internal RAM for save games, which filled up quickly. Therefore, this memory card was an essential purchase for serious gamers, especially those who favoured the large number of RPGs on the system.

INSTANT EXPERT

The PC-FX uses 32K of internal RAM for save games. Many games feature unique warning messages alerting the player when this memory is full.

Hi-Ten Bomberman, a ten-player version of Hudson's famous title, was rumoured to be in development for the system but was cancelled. Many believe this formed the basis for the Saturn's sublime *Bomberman*.

In keeping with NEC's vision of technological convergence, a modem was mooted for the PC-FX but never saw the light of day.

Although the PC-FX joypad was aesthetically the same as the one bundled with the PC-Engine Duo RX, the auto-fire switches became 'mode' switches, which enabled players to change the mapping of the pad's buttons instantly.

Hudson and NEC's software publishing policy favoured a heavy bias towards anime-style games and 'digital comics', both popular in Japan at the time.

Only 62 games were officially released for the PC-FX during its three-and-a-half-year life span.

Early releases came in attractive plastic boxes, not totally dissimilar to the ones used for the Neo-Geo AES, but as time went on NEC reverted to cheaper (and a lot less attractive) standard CD jewel cases.

The three expansion ports of the PC-FX were apparently included because NEC and Hudson were keen to avoid the endless and confusing string of upgrades that had so befuddled prospective PC-Engine owners.

The PC-FX's 'FX-BMP' memory card is powered by two AAA batteries.

The three expansion slots on the PC-FX each had a special purpose. The front slot housed the FX-BMP memory card, the one at the rear was for the SCSI cable and the remaining bay was for the proposed 3D card.

AARON NANTO INTERVIEW

PC-Engine FX (http://pcenginefx.com/PC-FX) is without question the internet's leading resource on all things PC-FX, showcasing a fine selection of images, reviews, videos and other related media. We spoke to webmaster Aaron Nanto, who is the proud owner of a complete PC-FX collection, about NEC's 32-bit console.

■ What do you find so appealing about the PC-FX?
The PC-FX is unlike any other console for two reasons: the games and the design of the system. The PC-FX is the only console that utilised motion JPEG technology for its primary purpose to give you real-time control of full-motion video. This allowed for fighting games like *Battle Heat*, where you controlled your character via FMV sequences that reacted instantly to your button presses. Other consoles back in the day had FMV games, but nothing as fast or high quality as what the PC-FX could do. The other unique feature of the PC-FX is the design of the console – the PC-FX is the only game console to be designed like a mini-tower computer with three expansion ports.

■ Why do you think the PC-FX failed to sell in Japan?
The reason the PC-FX didn't sell that well in Japan was due to the games and the fact that it didn't support backwards compatibility with the PC-Engine. NEC took a radically different approach to what types of games were released for the PC-FX and this was undoubtedly a major factor in the failure of the console. Gone were the arcade conversions, shooters and platform games from the PC-Engine. NEC instead gave gamers original IPs, FMV versions of old classics and anime games.

■ Do you think the hardware was exploited to its fullest potential during the PC-FX's short life span?
The PC-FX hardware was definitely not exploited to its fullest potential before support was pulled for the console. For the majority of the games, we saw 2D sprites and FMV, but the PC-FX had the potential to display 3D graphics to a certain extent and we saw just a hint of that in the game *Zenki*.

■ Can you tell us a bit about the expandability aspect of the machine? Is it true that a 3D card was proposed that would allow it to compete with consoles like the Saturn and PlayStation?
The PC-FX had a huge amount of expansion options that were not exploited during the short life of the console. Unfortunately, we will never know what NEC might have done to expand the console – a 3D card could have been a possibility, as with memory expansion or even adding a modem. However, the only item that utilised the expansion ports was the FX-BMP, which provided more save-game memory.

■ How easy is it to collect for the machine today?
Due to the limited market of the unit (Japan only) and low number of games produced, people who want to start collecting the PC-FX will have a very hard time acquiring many of the games – the prices can be quite steep. The console and accessories are fairly easy to find on the used market but the games will take a much longer time to collect. Personally, it took about five years to collect every PC-FX game for my own collection, and this was many years ago – it is much harder now.

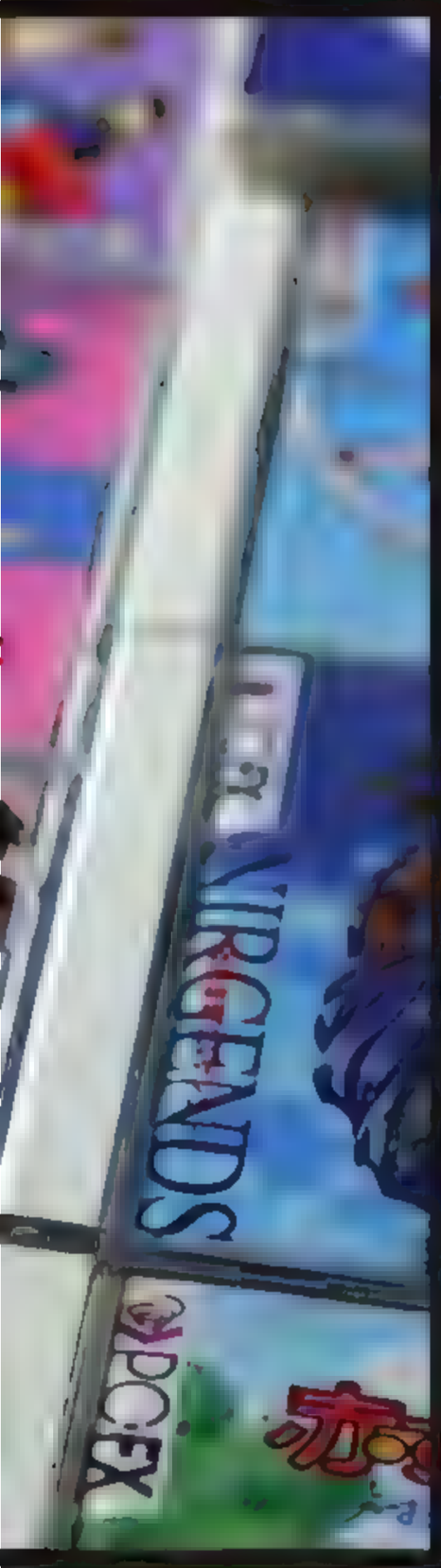
■ How much does a PC-FX unit sell for these days?
The PC-FX console itself you can find on eBay for about $100 (£50), but most times it will have to be shipped from Japan and that can be another $40+ (£20+) just for shipping.

■ Given the Japanese nature of the machine's videogames, how easy is it for English-speaking gamers to get to grips with the PC-FX and its software?
There is only a small selection of games that non-Japanese players can enjoy, which means that if you can't understand Japanese, this console might not be for you considering the cost involved in acquiring the games.

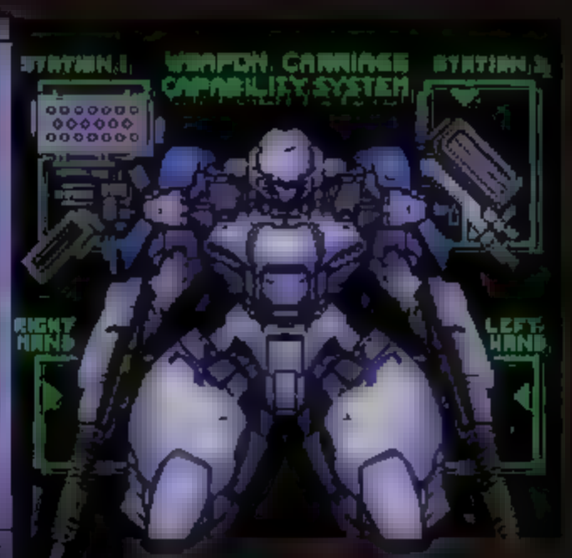
Initially the two companies were confident of launching Tetsujin in 1992, but lack of finished software forced a rethink and spring 1993 became the target date. When this was also missed, rumours began to circulate that NEC and Hudson were reluctant to usurp the PC-Engine while it was still pulling in good business (in Japan, at least). As the months passed Tetsujin became less and less cutting-edge and it seems that during this time little development was undertaken to ensure the new hardware retained parity with newer machines like the 3DO and Atari Jaguar; NEC and Hudson seemed content to rest on their collective laurels, at least while their current hardware was still viable.

Then, in early-1994, it was confirmed that the Tetsujin project had been formally cancelled. Sources insisted that development had been abandoned due to NEC and Hudson seeing the proposed specs for Sega and Sony's 32-bit challengers, both of which outshone Tetsujin and also promised considerable 3D capability. In light of such competition the partners were forced to scurry back to the drawing board. Sadly, it was far too late to come up with an entirely new design and therefore much of the architecture that was present in the (by now) hopelessly underpowered Tetsujin was utilised in the new machine. Although Hudson's five-piece custom graphics chipset was streamlined to just a single co-processor, Tetsujin's reliance on streamed footage rather than real-time rendering was retained. The working title for this new platform was 'FX', which soon became PC-FX – the 'PC' presumably being added to capitalise on the prominence the PC-Engine brand was enjoying in Japan at the time. Despite this name checking, it was confirmed early on that this new device would not be backward compatible with existing PC-Engine CD-ROM software.

The PC-FX console finally made its worldwide debut at the 1994 Tokyo Toy Show where it fought with the Saturn, PlayStation, Neo-Geo CD and



Launch title *Team Innocent* used pre-rendered backgrounds in a similar fashion to Capcom's *Resident Evil*.



Running on the Tetsujin hardware, this update of Hudson's popular *Star Soldier* franchise used pre-rendered backgrounds and 3D ships.

A STRANGE BREW

Although the PC-FX was severely lacking 3D muscle, NEC did release one piece of hardware that granted a glimpse of what might have been. The PC-FXGA (the GA stood for 'Game Accelerator') was a card that could be installed on a PC (or on a PC-98, which was NEC's own personal computer standard in Japan) and used to develop 3D homebrew titles. Some intriguing demos were also bundled with the card and while they're hardly breathtaking by the standards of the era, it at least gives a hint of the kind of 3D power that the system could have enjoyed. Sadly, because NEC's proposed 3D expansion card for the home console never materialised, anything produced using the PC-FXGA was unplayable on the standard PC-FX. Still, this is a pretty unique piece of kit and is fairly desirable in the eyes of serious collectors.

Bandai Playdia for the attention of the masses. The unconventional casing design immediately caused tongues to waggle, with many commentators unfavourably comparing it to the rather unflattering PC towers that were available at the time. Nevertheless, attendees at the show were left open-mouthed by *FX Fighter*, a title shrewdly positioned to steal the thunder of Sega's *Virtua Fighter* arcade conversion, which also happened to be on display. Hudson's game looked nothing short of stunning, boasting highly detailed combatants constructed of smoothly shaded polygons. It certainly put Sega's boxy effort to shame, but there was a significant catch: the PC-FX was in fact spooling pre-rendered footage directly from the CD and not actually generating these images in real-time. It wasn't immediately apparent at the time but the system lacked dedicated 3D hardware and this effectively meant that it couldn't hope to compete with the Saturn and PlayStation in this regard. In their defence, neither NEC nor Hudson ever insisted that the footage was real-time rendering; it was rather the assumption of those that viewed the demonstration that perpetuated this viewpoint. Nevertheless, magazines picked up on the impressive footage and this contributed to the expectation surrounding the launch of the console.

However, when the PC-FX eventually hit Japanese store shelves in December 1994 the mystique surrounding its 3D muscle swiftly evaporated. *FX Fighter* was nowhere to be seen, although leading launch title *Battle Heat* proved to be a very similar proposition. It was essentially a *Dragon's Lair*-style anime fighting game where animated sequences were spooled off the disc in time with the player's button commands. To be fair, it was (and still is) an awesomely impressive trick; there is no delay between the player's input and on-screen action and the quality of the FMV is tremendous. This is thanks to the fact that NEC and Hudson had decided to shun traditional MPEG video playback (which resulted in low quality compressed footage with lots of pixelation and a generally low frame rate) in favour of the much more memory-intensive JPEG system, which essentially displayed a different high-quality still image for each frame of animation, and all at a silky-smooth rate of 30 frames per second. Because it was built on the foundations of Project Tetsujin, the console was therefore constructed from the outset to make use of this unique method. Tetsuya Iguchi, a member of NEC's Electronic Products planning department, proudly stated that the PC-FX was a 'Direct Memory Access' machine. Instead of pushing data from the CD through the CPU bus, the PC-FX channelled the information directly to the video-out port via a sequencer, rendering chip and video encoding processor. This process allowed the machine to produce blisteringly fast video footage, and it should come as no surprise to learn that the console eventually became a hotbed of anime-style games.

> "IT WAS HARD TO IGNORE THAT THE SATURN AND PLAYSTATION OFFERED CUTTING-EDGE 3D VISUALS FOR THE SAME PRICE"

However, for all this FMV-related trickery, it was hard to ignore that the Saturn and PlayStation were bringing cutting-edge 3D visuals to homes for the

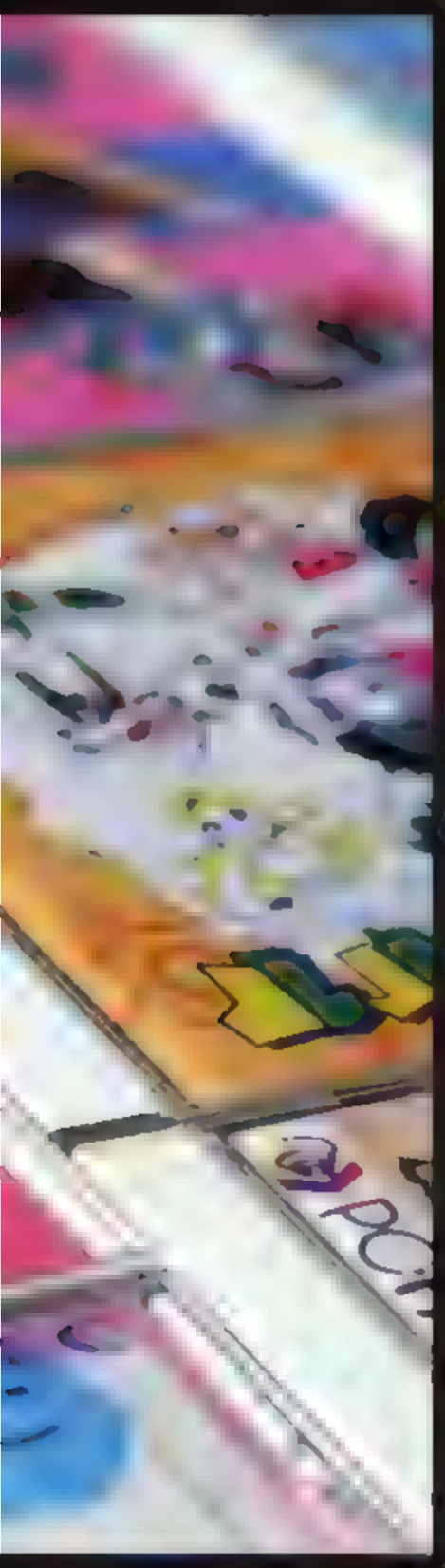
EVERYTHING PUT TOGETHER FALLS APART

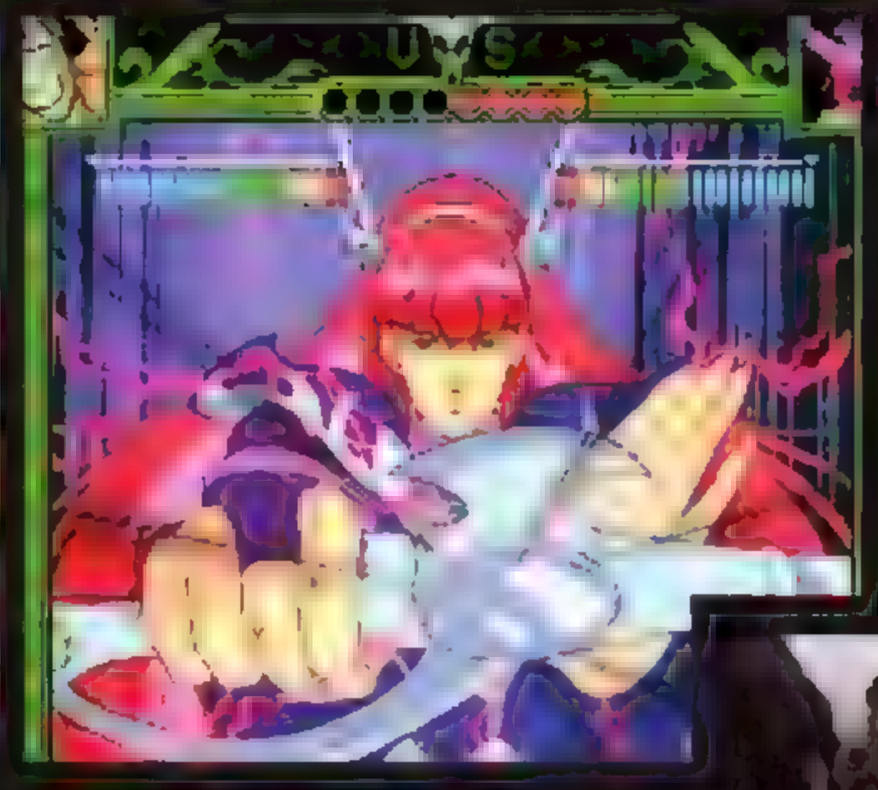
Compared with rival machines, the PC-FX is a pretty hefty beast, but you may wonder just how much of the space inside that bulky casing is taken up by actual hardware. One PC-FX owner also found himself pondering this troublesome question and so he disassembled his beloved console, piece by piece. Amazingly, he discovered that the PC-FX is mostly full of air, with the actual circuit board and electronics taking up only a tiny percentage of the internal real estate. Naturally, much of this space would have been swallowed up by the proposed upgrades, which would have occupied the areas within the expansion slots. For those of you with strong stomachs, the grisly results of this machine dissection can be seen here: **http://nfggames.com/forum2/index.php?topic=1306**. Whatever you do, don't try this at home, kids.

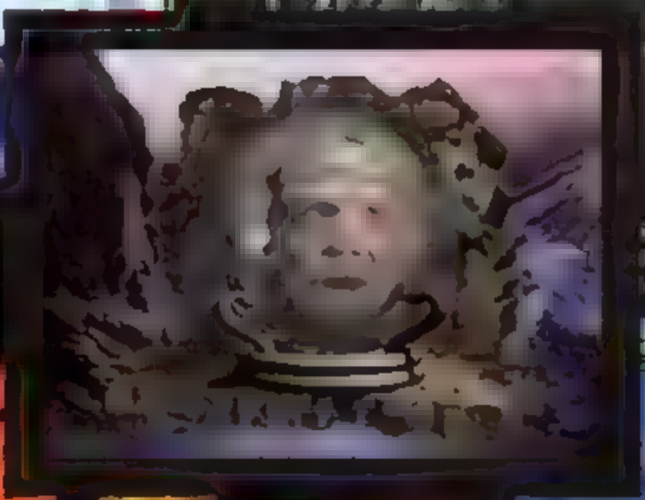
same retail price, making the PC-FX look massively underpowered as a result. But it wasn't just technical issues that PC-FX owners had to deal with; software support was equally disappointing. The much-hyped *FX Fighter* was quietly cancelled and in a move that with the benefit of hindsight appears particularly foolhardy, Hudson established publishing guidelines that stipulated that famous titles such as *Bomberman* and *Adventure Island* would not be developed for the system. Perhaps the company was attempting to prove that the PC-FX was too advanced to host these seemingly simplistic games; whatever the reason for this puzzling stance, it meant that the console was fighting without the aid of Hudson's most potent weaponry – its best-selling franchises.

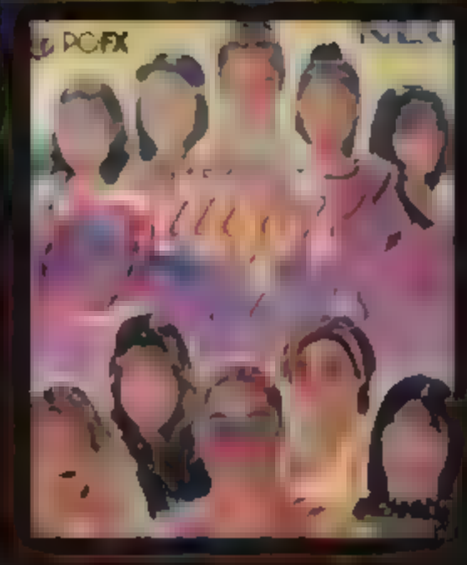
However, even in the darkness a few faint glimmers of light could be seen. Games such as *Chip Chan Kicki*, *Der Langrisser FX* and *Kishin Doji Zenki: Vajura Fight* managed to ignite the interest of gamers the world over, with *Zenki's* exhilarating mixture of gorgeous 2D visuals and addictive gameplay almost providing enough justification for numerous enthusiasts to purchase a PC-FX purely to play it. Many of the anime FMV games were actually remarkably entertaining and very nearly succeeded in making what was previously a laughable genre appear almost worthwhile. For all its faults, NEC's machine was certainly adept at creating attractive 2D videogames and could handle FMV with remarkable proficiency, but sadly NEC and Hudson had simply backed the wrong horse – 3D was the next big thing, as the runaway success of the PlayStation would attest.

Like so many other machines of the era, the PC-FX was billed as a 'multimedia' device as well as a gaming platform. The PC tower casing – so









At odds with conventional console design, which favoured machines that spread themselves horizontally rather than vertically – may not have been to everybody's tastes, but it arguably gave the PC-FX a mature, almost professional look. The ability to receive (but not send) faxes was an innovative attempt to introduce the kind of online connectivity we now take for granted with machines like the Xbox 360 and PlayStation 3; indeed, prior to the console's release Tetsuya Iguchi spoke of forging a link between different electronic products, such personal computers and telecommunications systems. The machine featured ports for future expandability and although the only peripheral to make use of this was the FX-BMP game save memory module, there were rumours that a fully fledged 3D graphics card was in the works that would have allowed the PC-FX to compete toe-to-toe with Sony and Sega's machines. Music CD and Photo CD playback was also supported and in a rather novel move the console could be connected to a PC-98 personal computer via a special SCSI adapter and function as a CD-ROM drive.

However, as innovative as these features may have been, they counted for little in the face of more technically potent rivals. Bolstered by impressive capability and sterling support from publishers, the PlayStation quickly ran away with the majority of the market leaving the competition in its wake. The PC-FX hardly figured in the scheme of things; sales were pitiful, with less than 100,000 units sold after a year – compare this to the performance of the PlayStation, which had shifted over 1 million units in Japan by this stage. Amazingly, these figures might not have come as much of a surprise to NEC as it would appear the company's aspirations were low from the beginning, with Iguchi being quoted as saying he expected the PC-FX to sell "around 50,000" units in 1994 and another 50,000 in the following year.

As things became increasingly fraught, NEC opened the floodgates on what many would consider to be the console's lasting legacy – dubious 'hentai' dating simulations featuring wide-eyed schoolgirls in provocative poses. But even before this occurred, the acutely Japanese nature of the software had effectively spelt an end to what little chance there had been of a Western release. It could be argued that after the dismal performance of the TurboGrafx-16 (the American version of the PC-Engine), NEC wasn't going to make the same mistake twice, but had the PC-FX been a success in its homeland, the probability of it reaching Western shores would have been much greater.

Nevertheless, the PC-FX did manage to carve out a niche for itself in Japan and hung onto a tiny market share for over three years. The final release (called *First Kiss Story* – you guessed it, a dating simulator) limped onto Japanese shelves in April 1998. Rumours circulated that other games (including a highly anticipated update of Hudson's classic *Far East Of Eden* series) were awaiting development "dependent on market performance", but this was effectively the end of the road for the PC-FX – a console that was outdated from the moment it went on sale. It was a bitterly disappointing outcome and a far cry from the triumphant legacy left by the PC-Engine; it also spelt the end of NEC and Hudson's previously fruitful relationship.

(Many thanks to Aaron Nanto for providing exclusive hardware and software photography.)

Year released: Japan. 23 June 1996, US. 29 September 1996, UK. 1 March 1997

Original price: ¥24,900 (Japan), $199.99 (USA), £249.99 (UK)

Buy it now for: £10-£15

Associated magazines: N64, Nintendo Official Magazine, Total

Why the N64 was great... It's all about the controller and the software, courtesy of the intangible genius of Nintendo's internal development teams and the hard work of the third parties that stayed the course, especially Rare who, quite frankly, will never be the same again. The ironic part is that while Nintendo's fortunes have improved since many of the games lauded at the time have not been bettered and probably never will be. That in itself will be the legacy left by Nintendo's last cartridge-based home console.

NINTENDO64

WITH THE SUCCESS OF THE NES AND SNES UNDER ITS BELT, NINTENDO APPEARED UNSTOPPABLE. THAT WAS ALL ABOUT TO CHANGE. MAT ALLEN LOOKS AT HOW THE N64 CONSOLE IS A PERFECT EXAMPLE OF HOW IT CAN ALL GO WRONG DUE TO COMPETITION FROM A CORPORATE BEHEMOTH AND BAD EXECUTIVE DECISIONS FROM WITHIN

'Wrong' is an entirely subjective and opinionated summary of the situation It is hard to deny that there were a number of factors that resulted in Nintendo being dethroned by Sony by the time the N64 was phased out The innocent victim in all this was the console itself; it was a great machine with some unbelievable games, but it was hamstrung by certain corporate decisions and never fulfilled its potential. However it was not the flop many others label it as either

Project Reality was first hinted at as far back as 1993, the name coined from Nintendo's new relationship with Silicon Graphics and its workstations being used to great effect in films such as *Jurassic Park* and *Terminator 2*. The following year saw the arcade machines *Killer Instinct* and *Cruis'n USA* released that were touted as using the same technology that would soon be available in your own home In hindsight, the arcade machines were vastly overpowered by comparison, but no one was to know that and anticipation surrounding Nintendo's next console grew

It wasn't until November 1995 that the new console, dubbed the Ultra 64, was finally unveiled at the annual Shoshinkai exhibition to great expectation. Only two of the 11 games shown were playable, one was *Kirby Bowl*, which would disappear into development hell shortly afterwards The other was *Super Mario 64* The playable demos available were all that was needed to convince the attendees that Nintendo still had the magic

Part of that was due to the design of the controller. Nintendo is known for producing ergonomic devices that are focused on getting the best out of its own games, and for the N64 this was no different. Designed by Genyo Takeda, the controller had three prongs, offering three different holding positions and hence the possibility of varying control schemes all wrapped up in one unit. Sitting on the middle prong was an analogue stick, a device unfamiliar to many people at the time This design choice was about to change the way videogames were made forever

The controller was better than that of the competition, but it took time to learn how to use it. The same could be said for the console itself When announced, terms such as 'Z-buffering', 'tri-linear mip-mapping' and 'Gouraud shading' both wowed and confused the

New... Or Old?

Many groundbreaking features of the N64 touted by Nintendo were not as new as first thought The N64 itself was labelled the first 64-bit console, though technically the Atari Jaguar had beaten it to it with its object processor And neither was it the first console with four controller ports as the Bally Astrocade and Atari 5200 had this feature in the pre-crash era And that analogue stick sitting prominently in the middle of the controller? Many people believe Sega had pre-empted Nintendo's decision with its release of *NiGHTS* (bundled with such a controller), but the game was released in Japan two weeks after the N64 launched Nonetheless, both the Atari 5200 and Vectrex had an analogue stick as standard What can be said for sure, though, is that the inclusion of this feature has influenced the design of all future controllers since

"THE PLAYABLE DEMOS AVAILABLE WERE ALL THAT WAS NEEDED TO CONVINCE THE ATTENDEES THAT NINTENDO STILL HAD THE MAGIC"

64 Didn't Deliver

The 64DD unit, or Dynamic Drive, was Nintendo's attempt at a proprietary media format that could rival the capacity and flexibility of the CD used by Sony's PlayStation. First previewed in 1995 before the N64 had even launched, it was delayed beyond recognition and when it finally did arrive in 1999, had lost all the momentum and impetus that it promised. Not only were games being designed to run from the unit directly, but also many companies were planning upgrade disks that could be accessed by the cartridge version to add new features, missions and content to the main game. With the delays, all bar one of these was cancelled. The one survivor, the *F-Zero X* Expansion Kit, happened to be almost worth buying the unit for regardless. During its one-year lifespan only nine pieces of software were released for the unit, and in conclusion can be considered the only Nintendo hardware failure alongside the Virtual Boy.

public in equal numbers, and many magazines sought to explain these words to their readers. While these features and more were to prove the power of the N64 was greater than that of the PlayStation, they also provided one or two serious end-user flaws.

The largest complaint levelled against the N64 is how quite often, the graphics appear as if someone has smeared Vaseline across the screen. This blurry appraisal was in contrast to the often jagged and pixelated look on the PlayStation; the N64's mip-map and anti-aliasing techniques helped smooth out textures when they moved closer or further from view, but the restrictions on storage with cartridges and a very low texture cache meant these textures were often blurry as a result. Nintendo itself often chose to use the Gouraud shading to compensate for the lack of texture definition.

"AT THAT POINT, SUPER MARIO 64 HAD BEEN SOLD WITH ALMOST EVERY CONSOLE"

Clever tricks to get around some of the limitations, together with rewriting parts of the graphics processor microcode meant that the true power of the N64 could shine through. Developers such as Factor 5 and Rare were especially adept at getting the most from the machine. In conclusion, like most other consoles, those developers willing to put the effort into learning got the most from it, as witnessed in the end result of the games they released.

As early as 1994, Nintendo had started to assemble a group of programming teams that would be responsible for producing some of the early N64 games, that would inevitably give them a head start in getting the best from it. Aside from Williams and Rare who produced the previously mentioned coin-ops, others courted included simulation specialists Paradigm, Acclaim, Sierra, LucasArts, and Electronic Arts. Notice anything about the companies listed? None of them were Japanese. A costly oversight at the time? Maybe so, looking back. Perhaps Nintendo believed Japanese companies would automatically come on board. The reality was to prove a lot different. Either way, even with the head start it took longer than expected for any of the third parties to fully push the machine. Even Nintendo itself wasn't immune to running late. The N64 had originally been scheduled for a 1995 release, and when a definite date of 21 April 1996 was finally decided upon, it shifted two more months due to the realisation that certain titles, such as *Mario Kart 64*, were not going to make the first wave of releases, and Miyamoto wanting more time to fine tune *Super Mario 64*.

April 1996 incidentally had been the planned launch date in the UK. This slipped back to March 1997 as the US release was planned and orchestrated. The PlayStation was already out and Nintendo UK ran a series of adverts telling people to wait for the arrival of the N64. At the time it was still called the Ultra 64, the "Ultra" part apparently dropped in due course due to the name being owned by Konami.

When the console did launch in Japan, the PlayStation had already been on sale there for 18 months. The launch games were similar to that of its predecessor, the Super Famicom, in that it involved a *Mario* title and a *Pilotwings* game. The other title available that day was a version of *Shogi*, a game very much Japan-centric in nature.

And that was it. Until the release date of the console in the US was approaching, there was no other software released in Japan, which was somewhat worrying from a promotions and publicity point of view. *Super Mario 64* may have been an epic, brilliant, groundbreaking title, but if people wanted something else to try on their new system, they were a little stuck, to the say the least. Not that Nintendo had much to worry about the success of the console at that point; *Super Mario 64* had been sold with almost every console, and by the end of the N64's lifespan, had shifted more than ten million copies, making it the most successful N64 game ever.

With the launch of the console in September in the US coming up, Sony raised the competition stakes slightly by dropping the price of the PlayStation to under $200 – a common tactic. However Nintendo seemed to panic, and in response dropped the price of the N64 pre-launch by $50 from its original proposed price of $249.99. The same could not be said of the console launch in the UK: Nintendo resolutely stuck to its price of £249.99, which at the time made it 60 per cent more expensive than it could be bought for in the US. Realising its

What a lot of people bought a N64 for in the first place.

Nintendo ads tried to persuade people not to buy a PlayStation.

Guns, girls, gigantic set pieces, what more could you want?

Worthy of purchase merely for the Katina level, but brilliant overall in all respects

A new entry in the series gained a whole new set of fans, but many SNES fans were disappointed by comparison with the game

Take the simple board game concept, throw a whole load of mini-games and Nintendo characters into the mix and the result is an entertaining party game. Which has since been milked to death.

Originally conceived as a powerboat racer, once it turned into a jet ski simulation it gained a more personal quality with the controls being perfect and the wave simulation incredibly accurate

folly soon after, the price was dropped £100 a few months after launch heralding scores of furious complaints from early adopters Nintendo attempted to placate them with vouchers covering the difference, which was mildly received. It wasn't the only reason why being a PAL N64 owner at the time was the equivalent of getting a sharp stick repeatedly up the backside, for reasons that will be touched on later.

What can't be denied is the quality of some of Nintendo's own games. Examples of its great games include. *Star Fox 64* with its marauding levels, challenge, addictiveness and the sheer film inspiration of the Katina level; *WaveRace 64* with its superb water physics and bouncy gameplay; *F-Zero X* for taking the original, giving it a serious rocket from behind and a real heavy metal soundtrack to boot; *Pilotwings 64* for being so wonderful to play

Three new series also made their debut on the N64, all becoming instant hits. *Super Smash Bros* was Nintendo's answer to the *Power Stone* genre of multiplayer fighter, but with the spark of HAL Labs at the helm, made it a unique creation of backstabbing brilliance *Paper Mario* meanwhile was a different take on the turn-based RPG concept with plenty of nuances and invention to back up the gameplay. Finally *Mario Party* combined board games with mini-games and the chance to wreck your analogue stick in the process

And then there are the *Zelda* games. *Ocarina Of Time* was constantly delayed but proved to be a tour de force of concept, idea and execution that has justified it to be labelled repeatedly as the best game ever *Majora's Mask* on the other hand has been unfairly overlooked by comparison, which is a shame because in some ways, it even trumps *Ocarina*. The relationships and bonds formed within the three days left before the moon strikes are some of the strongest ever produced from a game, and it really hits home when you realise just what the ending actually means.

Nintendo had its own popular games, the powerful hardware, and the new controller There was just one piece missing from the equation: third-party support. Why was third-party support so lacking on the N64 compared to their two previous consoles? One of the main reasons lies in the choice of remaining with a cartridge media format instead of using optical as Sega and Sony had.

Not that cartridges didn't still have advantages: they were more robust than CDs, less likely to be damaged via general use, they

"THERE WAS JUST ONE PIECE MISSING FROM THE EQUATION: THIRD-PARTY SUPPORT. WHY WAS THIRD-PARTY SUPPORT SO LACKING ON THE N64 COMPARED TO ITS TWO PREVIOUS CONSOLES?"

could hold save data via design instead of making the user buy memory cards and loading times were non existent compared to CD which a generation of gamers unfamiliar with loading tapes into 8-bit machines were about to discover anew Loading times disrupted the flow of playing a game something that Nintendo was keen to avoid

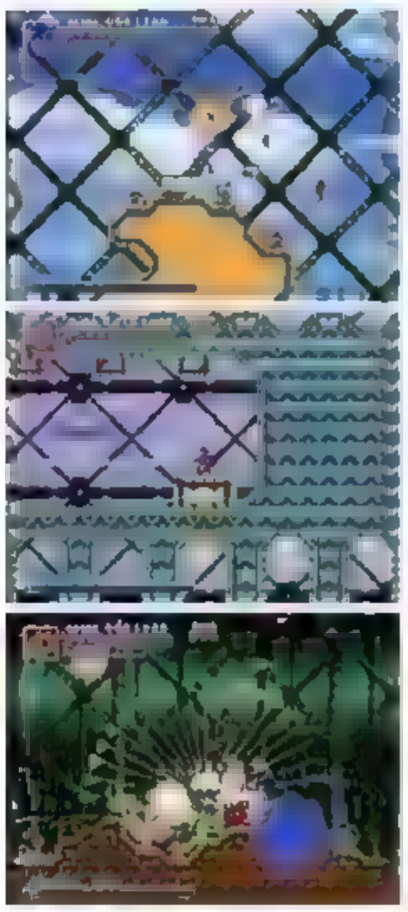
However there was one over-riding link connecting all these features they benefited the end user and not the publisher Cartridges were expensive to manufacture, and as Nintendo still controlled their production it profited directly from every one made Cartridges were also harder to pirate, which is likely another reason for sticking with that format They also held far less data than CDs could so publishers were in effect being asked to support a console that had a far higher space to cost ratio than say the PlayStation

Then there were the licensing fees Sony had been smarting for years over Nintendo's betrayal regarding the proposed CD peripheral for the SNES Not wanting to cancel the project outright Sony decided to continue research and build around what it had already created, with the end result being the PlayStation console we know today. Sensing an opportunity, Sony organised its licence fee structure (the money publishers have to pay to be allowed to release their games on a machine) on a much lower scale to Nintendo

When you look at everything together, the cost of manufacture the cost of licensing, the difficulty in getting the best out of the console it isn't hard to see why third-party publishers made a beeline for the PlayStation compared to the N64. It was far cheaper and easier for them to publish videogames all of a sudden Their decision was made by the actions of both manufacturers *Edge* magazine even predicted many of these factors in an article soon after the N64 launch This situation was further escalated by the choice made by a certain Japanese company with a certain RPG

NINTENDO64

"THE N64 IS PROBABLY WHERE THE ADAGE 'YOU BUY A NINTENDO MACHINE FOR NINTENDO'S GAMES' BEGAN"



Bangai-O: the original, and some would say, better version of the panic-inducing shooter fest

Software availability from certain publishers and of certain established series is a key factor today towards a console's success. In hindsight it did not matter that the N64 probably had a far better good-to-bad ratio of games in its library; it was the sheer volume of releases at a cheaper price for the PlayStation plus the presence of certain key games that tipped the balance

Looking at the major third-party publishers during the Nineties, there were wide differences in their output between the N64 and the PlayStation. Capcom and Namco managed a whole three releases each for the N64, a shockingly low level of support. Konami by comparison released 20 or so games, which seems pretty impressive, until compared to the more than 50 released for the PlayStation. Even the king of third parties, Electronic Arts, only managed a similar number of releases

The biggest blow to Nintendo's fortunes was the loss of Square. Towards the end of 1995, several screenshots were published which were purportedly taken from the next *Final Fantasy* videogame. That's how the journalism went. In fact they were from a technical demo Square had written to test various three-dimensional techniques. Unfortunately no one knew this at the time and huge anticipation built when it was assumed Square was on board and writing the next *Final Fantasy* game for a Nintendo machine, just like it had for the previous six

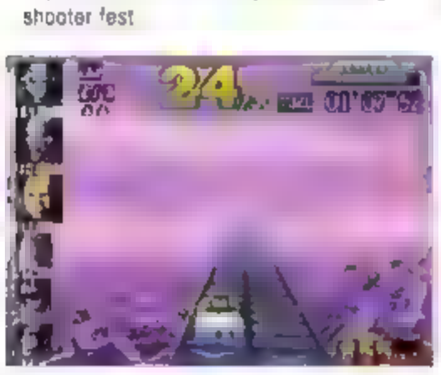
When Square announced in January 1996 it was instead going to be publishing *FF VII* on Sony's PlayStation, the collective jaws of Nintendo fans dropped. As it turns out, Square had never planned on publishing *FF VII* on the N64. Early on in development it was decided that the requirements of the game needed a much larger media capacity than cartridge allowed. Square's decision in hindsight was elegantly simple to make, but it didn't stop the accusations against Sony that it had "tied up" Square in a deal to take it away from Nintendo. Square had dealt the N64 a massive blow before it had even been launched

With *FF VII* scheduled to be released on the PlayStation, other publishers knew that the console would see in droves just so people could play the game, and this in turn gave them more confidence and knowledge that there would be lots more potential buyers for their games if they also released on the PlayStation. In a way, it was a self-fulfilling circle of cause and effect. Sony also marketed its console towards a different audience from the norm, complete with advert saturation, by comparison promotion for the N64 seemed quite small. Nintendo arrogantly assumed people would automatically go to buy its console regardless, which they did, but more people were flocking to the PlayStation for the games it offered and the "wow" factor that FMV provided via the new CD medium

With a narrower selection of parties publishing on the N64, it meant that certain genres were neglected, which affected sales levels. For example, role-playing games are huge business in Japan and there are hardly any available for the N64. Likewise fighting games. By comparison the range of sports games available for American fans was sufficiently large to keep them happy. In fact, the US is what really kept the console alive, as it accounted for two-thirds of the worldwide sales, and it managed to sell half of what the PlayStation achieved in that region

The N64 is probably where the adage 'you buy a Nintendo machine for Nintendo's games' began. Given the magnitude of many, they were worth the entry fee alone and anything else was a bonus. Of the developers who did write for the N64, one stands out above all others: Rare. Having wowed games players with their SNES releases, it was about to pull even bigger rabbits out of an even bigger hat. Put simply, you can't underestimate just how important Rare's games ended up being towards the success of the N64

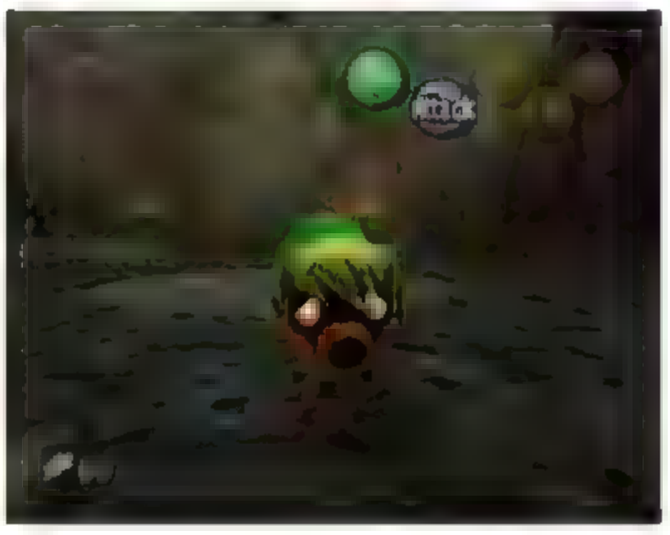
From the regal beauty and genius of the *Banjo-Kazooie* games, the addictiveness of *Diddy Kong Racing*, to the offbeat destructive nature of *Blast Corps*, and the frantic bug blast of *Jet Force Gemini*, Rare games were held in high esteem and rivalled the releases of Nintendo itself. Indeed in some ways, *Banjo-Kazooie* and *Diddy Kong Racing* supersede the games they were based upon. Sitting right at the top of the tree however is *GoldenEye*, which was a tour de force of programming, showing that consoles could do the FPS genre and give gamers a multiplayer experience that was incredibly hard to let go. It



The gaming equivalent of having your brain sucked out through your eyes. Explosively quick, superbly playable and playing a full-on heavy metal soundtrack

What might have been if Square had decided to remain with Nintendo

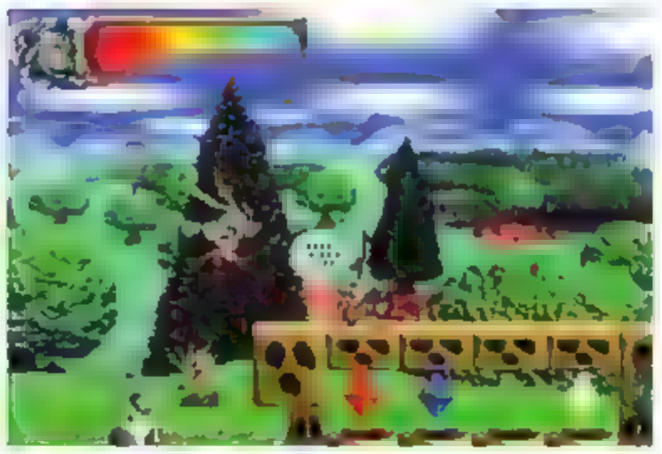
If you haven't heard of *Ocarina Of Time*, there's not much hope for you. Simple, sublime, beautifully brilliant.



As a game, *Majora's Mask* wasn't as epic as *Ocarina*, but it somehow created even more emotion and atmosphere than its predecessor

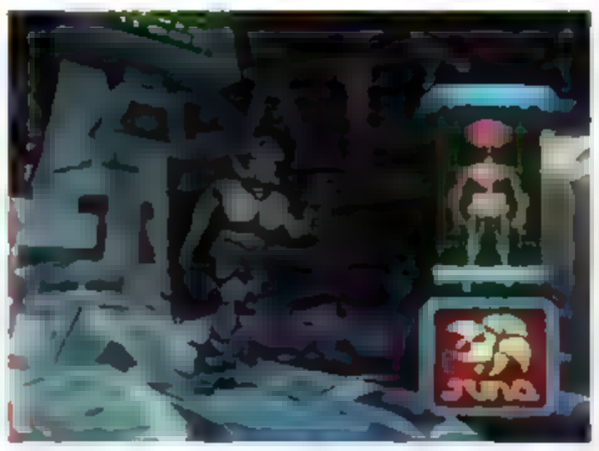
Football (or soccer) may not be that huge in the US, but they received all three N64 *ISS* games with region-specific artwork and design. The game still played brilliantly as always.

Bear, bird and big eyed characters It's bound to be another Rare classic

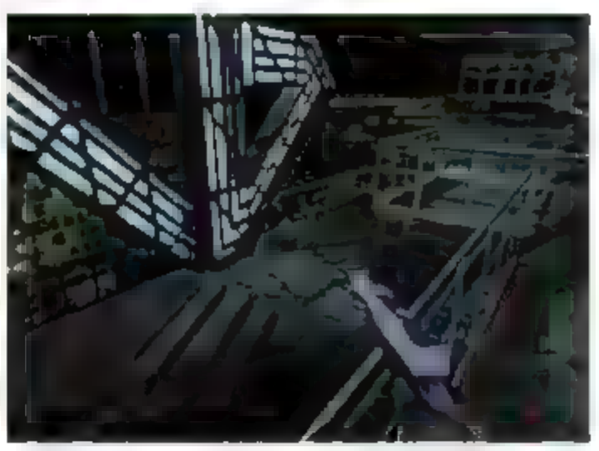


While Treasure is still going strong, you can be sure that quality 2D gaming is never going to die

Rare's *Diddy Kong Racing* had a single-player mode that was far more entertaining than what was featured in *Mario Kart 64*. The multiplayer was pretty good as well



Bugs and blasters ahoy as Rare do the third-person-shooter-fest in another example of how to get the most from the N64 hardware



The ambitious sequel to *GoldenEye*, that delivered in spades but was just perhaps a little too demanding on the hardware

is rightly heralded as not only one of the best N64 games, but one of the greatest games of all time. Not bad for a team where many of the developers were doing their first ever game.

Of the major third-party publishers, Konami was probably the most prolific and consistent in its support of the N64, with versions of *Castlevania*, *Goemon* and *ISS* appearing on the machine among others; *ISS98* especially should be singled out for praise as being the best console football game available until the *Winning Eleven* series started to become known in the West. Konami's sports game contribution was large in general, probably helping the console's performance in the US.

Other developers were just as notable on the N64 even though their releases weren't quite as prolific as Konami. Left Field programmed a couple of good basketball games, licensed with Kobe Bryant, and the excellent *Excitebike*. Camelot transferred its superb golf series across to make *Mario Golf*, and then went on to produce the equally good *Mario Tennis*. Factor 5 produced two *Star Wars* games that almost pushed the N64 to its limit, and then went further and programmed the did-not-think-it-possible *Indiana Jones And The Infernal Machine*. Special word of course must go to the doyen of development, Treasure, which managed to produce its usual wizardry in creating three masterpieces of mayhem, namely *Mischief Makers*, *Bangai-O* and *Sin & Punishment*. All three are well worth finding and buying purely for their unbridled quality.

Towards the end of the N64's life, Nintendo belatedly released the 64DD unit in Japan and a 4MB RAM expansion pack designed to double the available memory of the console and allow more demanding titles to be written. Only a few games in the end actually needed it (though many benefited from its presence) but these include *Majora's Mask* and *Perfect Dark*, two of the classics. By the end of 2001, the Nintendo 64 was all but dead with the release of the GameCube, though *Tony Hawk's Pro Skater 3* did make it out in the US in August 2002.

If you missed out on all the N64 fun back then, now is a great time to get into the machine. There is just one consideration when choosing to buy: do not get a PAL machine. Not only can it not be modded for RGB, but many PAL games suffer from no optimisation at all, resulting in those large black borders and much slower speeds also experienced with the SNES. By comparison, buying the US version is probably the way to go, as it can play Japanese games with

"ANY CONSOLE THAT SELLS OVER 30 MILLION UNITS WITH MANY TRULY GREAT GAMES CANNOT RATIONALLY BE CALLED A FAILURE"

the removal of the tabs inside the slot and it had available just about everything released in Europe and much more. The N64 is currently something of a cult machine, with a dedicated band of supporters who are gradually winning over people who dismissed it at the time.

In fact, many people consider the N64 to be a failure, especially when compared to the performance of the PlayStation, which has to date sold more than 100 million units. However any console that sells over 30 million units worldwide and has many games present in the bestselling and greatest ever games lists cannot rationally be called a failure. Nintendo revolutionised 3D gaming and controllers via the N64, and it has an abundance of classics waiting to be discovered if you haven't done so already.

Special thanks to Lost Levels for the image of N64 *Final Fantasy VII*

iQue Test

China has always been one territory that console manufacturers traditionally steer clear of due to the rampant piracy present within the country. Nintendo decided to try to break into the market with the creation of the iQue Player released towards the end of 2003. On the outside it looks like the offspring of the N64 and Dreamcast controllers, but inside it uses console-on-a-chip technology to provide an N64 playing experience. Games are stored on a 64MB flash card contained within a cartridge that slotted into the device, which connected directly to the TV in a similar way to all those pirate rip-offs you see being sold on street markets. The games were available from an 'iQue depot' where they could be downloaded onto the cartridge. The unit was successful enough that Nintendo has released other versions of its more recent hardware in China to similar effect.

PERFECT TEN GAMES

GOLDENEYE

PLAYERS:
DEVELOPED BY:
BY THE SAME DEVELOPER:

When Rare's GoldenEye first appeared in 1997 first-person console shooters were fantastic, given a massive shot in the arm (pun fully intended) and the biggest overall shockwave through the industry that continues to be felt to this day.

SUPER MARIO 64

PLAYERS:
DEVELOPED BY:
BY THE SAME DEVELOPER:

Few videogames have made the sticky leap from 2D to 3D as successfully as Shigeru Miyamoto's Super Mario 64.

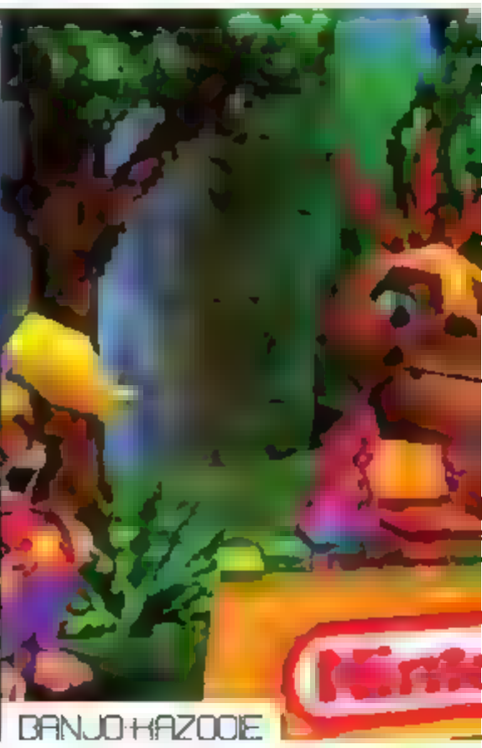
F-ZERO X

PLAYERS:
DEVELOPED BY:
BY THE SAME DEVELOPER:

Okay, so it has yet another N64 update, but no other racer on the N64 (with the exception of Nintendo's very own Wave Race 64) came close to matching the sheer speed and excitement that F-Zero X offered.

THE LEGEND OF ZELDA: OCARINA OF TIME

LYLAT WARS



BANJO-KAZOOIE

NINTENDO 64

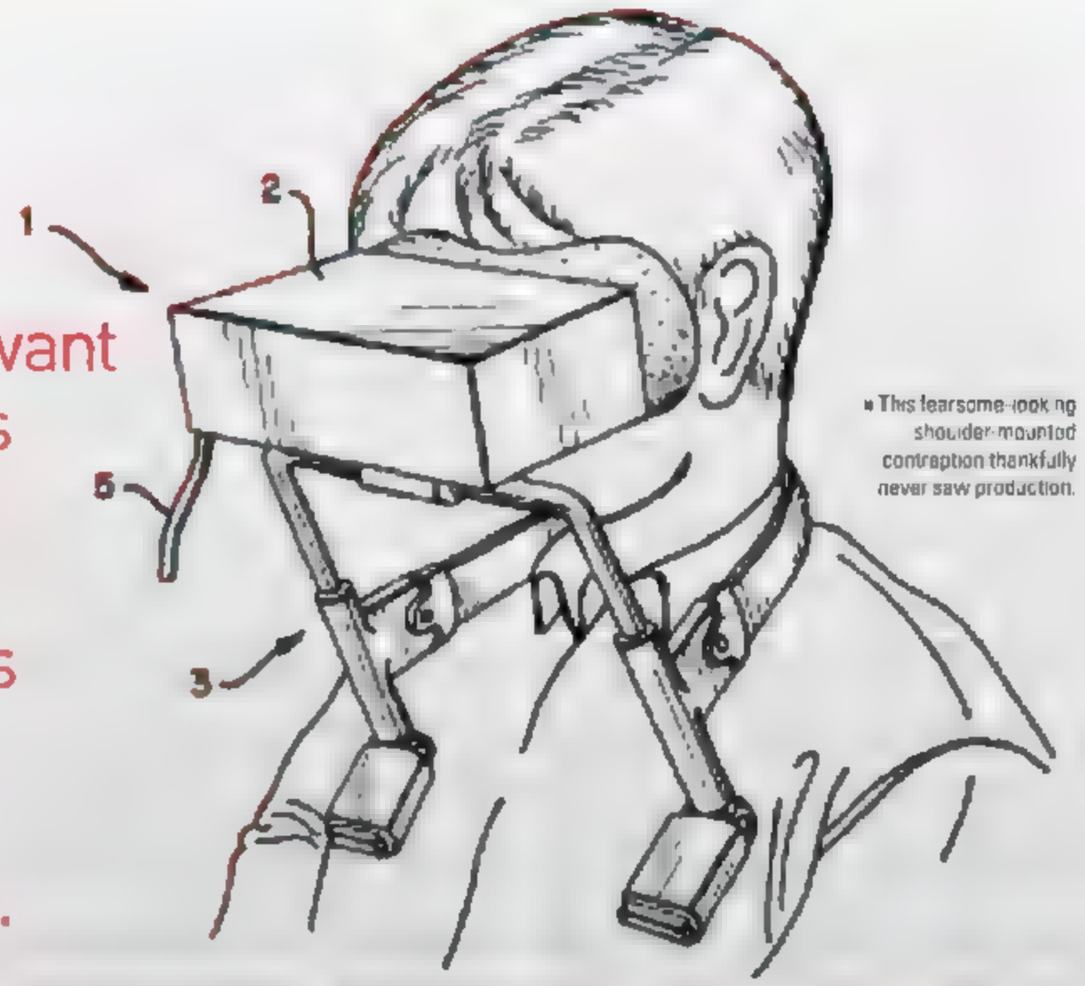
Selecting our favourite ten titles from a console's back catalogue never gets any easier. In fact, when it comes to the N64 it's probably even harder. Just remember that these are only our opinions and we don't mean any harm

PERFECT 10

WAVE RACE 64

BLAST CORPS

“Game Boy creator Gunpei Yokoi hit upon the notion of using two displays to create a three-dimensional image”



» This fearsome-looking shoulder-mounted contraption thankfully never saw production.

It's the console Nintendo doesn't want you to know about. The company's most high-profile bomb has been vilified as a headache-inducing monstrosity with little merit, but is this assessment fair? **Damien McFerran** pops a few aspirins and prepares to find out...

VIRTUAL BOY

Everybody has an awkward secret that they'd rather not share with the world. Be it an old school photo that showcases your crimes against fashion, or an acutely embarrassing vinyl LP in your record collection, we keep these things hidden in the hope that if we ignore them they might cease to exist. In the case of Japanese videogame giant Nintendo, the Virtual Boy is unquestionably its 'dirty little secret'. More than a decade after this unusual console sank almost without trace after enduring a period of consumer indifference, it remains a byword for dubious videogame hardware.

The genesis of the Virtual Boy came about when Nintendo was approached by US firm Reflection Technologies in the early-Nineties. Reflection was attempting to find a buyer for its independently produced display technology, and Game Boy creator Gunpei Yokoi was quick to identify the system's potential. He hit upon the notion of using two displays to create a three-dimensional image. In 1992 Nintendo acquired exclusive worldwide videogame licensing rights to Reflection Technologies' innovative system and Yokoi's Research & Development 1 team set about creating the console that would become the first fruit of this union.

As development progressed, Yokoi and his staff toyed with several different designs. Despite the machine's close ties with the concept of 'virtual reality', the idea of having a head-mounted system was ruled out almost immediately. Yokoi claimed that as soon as it was decided that the console would not support motion tracking to detect head movements, the decision was made to mount the system on a stand, rather than affixing it to the player's head.

While R&D1 furiously tinkered away within Nintendo's Kyoto HQ, news of this potentially ground-breaking new console – codenamed 'VR-32' – began to slowly trickle through to the gaming press. The biggest news was that it would pack a 32-bit CPU, like the upcoming Sony PlayStation and Sega Saturn. The next revelation was the ground-breaking 3D display, which promised a new standard of immersion. However, the timing of this news – not to mention the entire project – was somewhat perplexing as Nintendo was also making a tremendous amount of noise about its 64-bit 'Project Reality' console (which went on to become the Nintendo 64). Bearing this in mind, it's not surprising that most gamers interpreted the VR-32 as the spiritual successor to the ageing Game Boy, and the fact that Yokoi was involved only served to confirm this assumption. Regardless of this confusion, Nintendo fans were hungry for new hardware and therefore their interest was sufficiently piqued.

However, within the walls of Nintendo's HQ, Yokoi was unsettled. Nintendo was keen to get the VR-32 on to the market before committing all of its energies to the Nintendo 64, but it has been alleged that Yokoi felt it needed further fine-tuning

Year released: 1995

Orginal price: ¥15,000 (Japan), $180 (US)

Buy it now for: £80

Associated magazines: Virtual Boy Tsushin (special one-off issue)

Why the Virtual Boy was great... It offered an experience that you simply could not get anywhere else. Okay, so the hardware was flawed, the software could have been better and prolonged use often came with unbelievable neck strain, but it's certainly worth sitting down with this wholly unique console at least once in your life.

» The adjustable stand was agonisingly close to production in Japan, but the plug was pulled on the Virtual Boy before it could come to the aid of long-suffering owners.

A COLLECTOR'S DREAM?

Given its status as Nintendo's most high-profile balls-up, it's not surprising to find that the Virtual Boy is a hot collectable among Nintendo fans. However, consoles that are commercial failures are, as a rule, difficult to collect for – is that the case here? "A lot of the hardware and software is freely available on eBay," says Christian Radke, editor-in-chief of the excellent *Planet Virtual Boy*. "But if you want to go for a complete collection, you'll need a few thousands bucks, especially for the 'rare four'. These are *SD Gundam Dimension War* and *Virtual Bowling* – which both fetch about $800 – closely followed by *Virtual Lab*. *Space Invaders* is the fourth rare game, but can be found much cheaper, maybe $200." Peripherals are equally in demand: "Every Virtual Boy owner should have an AC adaptor. Another highly desired accessory is the FlashBoy, a semi-professionally made USB flash cartridge which I produced and distributed together with its creator, Richard Hutchinson, from December 2007 to February 2009."

» A Japanese magazine advert for the Virtual Boy. As with TV commercials, it was difficult to show off its unique 3D capabilities.

» Despite Gunpei Yokoi's previous successes, which included creating the magnificent Game Boy, he lost his coveted position at Nintendo as a result of the Virtual Boy's failure

> "With the gaming press expecting a 32-bit powerhouse, the red and black 2D visuals were a shock"

His reservations were disregarded. Nintendo was losing face because of Sony and Sega's impending entry into the 32-bit race, and it was clear that the company needed something to tide fans over until the N64 hardware could be completed. Having expended millions on VR-32 development already, Nintendo was understandably eager to get the hardware out to shop shelves in order to recoup its costs. Yokoi and his team prepped for launch but unfortunately the VR-32 (by this point officially rechristened Virtual Boy) experienced one of the most disastrous unveilings in the entire history of the videogame industry.

The first inkling that Nintendo might have a turkey on its hands was the overwhelmingly negative reaction to the Virtual Boy's debut at the Shoshinkai show in November 1994. With the gaming press expecting a 32-bit powerhouse to rival Sony and Sega's recently announced offerings, the red-and-black 2D visuals generated by Yokoi's TomyTronic 3D-lookalike were something of a shock and many journalists at the time were surprisingly frank with their opinion of the device. Some openly questioned Nintendo's sanity, while others predicted there and then that it would fail miserably. Few had anything positive to say. Despite this devastatingly unenthusiastic reaction, Nintendo of Japan supremo Hiroshi Yamauchi remained bullish about the Virtual Boy's prospects and confidently predicted it would shift 3 million consoles in Japan, as well as 14 million cartridges between its launch and March 1996.

Prior to launch, Nintendo was extremely cagey about revealing the secrets of its new machine – possibly out of fear that rival firms would copy the concept. Inside the console was a fairly complex array of cutting-edge technology that was able to create the impression of 3D depth. "For each eye there is a bank of vertically stacked red LEDs," explains programmer Steve Woita, who worked on Ocean Software's *Waterworld* Virtual Boy title. "These are arranged with 224 LEDs per bank and spray their information on to a mirror that is spinning at 50 times a second and delivering the game screen image to the retina. This is done for both eyes and means there has to be a grand total of 448 LEDs continually spraying information into your eyes." Jason Plumb, who worked alongside Woita on *Waterworld*, expands on this. "This process presents a separate image to each eye," he says. "If these images match the disparity that you are used to seeing in real life, then you perceive a sensation of depth related to the disparity between the images. Objects in the distance appear in the same position in both images, but the closer an object is in the scene, the more the horizontal position changes between the images. You can see this effect by holding a finger in front of your face, and comparing the image you see with each eye by closing the other. Your right eye sees your finger on the left side of what you can see, and the left eye sees it on the right side." Industry experts voiced their reservations about the predominantly 'red' visuals, but as Plumb explains, this was a cost-cutting measure more than anything else. "The main reason was that colours other than red were cost prohibitive," he comments. "Red LEDs were also more power efficient and easier to see than others."

The much talked about 32-bit CPU might have placed the console in a different league to the ageing Super Nintendo and Sega Mega Drive, but because of the additional effort of marshalling two displays instead of the traditional one, the power of the NEC810 CPU processor wasn't instantly apparent. "From a programming point of view it was difficult, the machine essentially had to keep twice as many screen buffers ready for display in the next frame than it would in a normal console game," says Woita. It also didn't help that the console lacked many features that were just starting to be incorporated into modern home consoles at the time. "The strange thing about the Virtual Boy was that it was a 3D device without

COMMUNITY VIRTUAL BOY SITES TO WATCH

Planet Virtual Boy
www.vr32.de/

Presided over by the ebullient Christian Radke, this excellent site sports a look as distinctive as the Virtual Boy itself. A wealth of information and media is at your fingertips, and there's also a well-attended forum, which attracts posts on a daily basis. It's one of the only Virtual Boy sites that still gets updated.

Virtual Boy.net
www.virtual-boy.org/

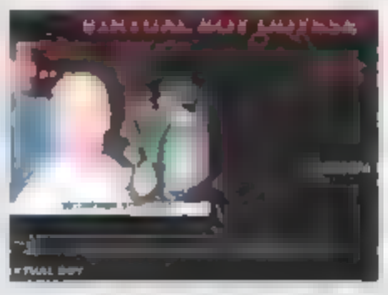
Planet Virtual Boy's only real rival, Virtual Boy.net has sadly remained dormant for a couple of years now, but it's still a gold mine of data. Webmaster Ferry Groenendijk is something of a Virtual Boy expert, so you can be assured of an enlightening experience if you happen to point your web browser this way.

The Unofficial Nintendo Virtual Boy Home Page
http://tinyurl.com/kgvg9

The official home of the 'Reality Boy' Virtual Boy emulator, this site also contains information on hacking the system. If you're brave enough to crack open your machine, you'll find plenty that's of interest here.

Virtual Boy Odyssey
http://tinyurl.com/dhtrgt

This site chronicles one man's quest to obtain a complete collection of sealed Virtual Boy games. The design may be amateurish and the layout confusing, but the author's enthusiasm shines through; this guy insists that the Virtual Boy changed his life and, to be honest, we're not brave enough to argue with him.



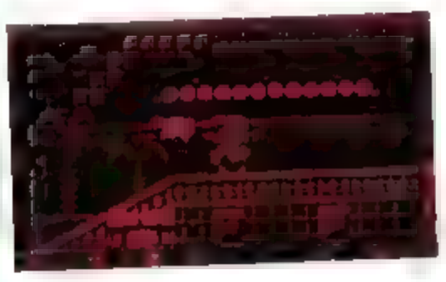
PERFECT FIVE

Vertical Force
Released: 1995
Published by: Nintendo
Created by: Hudson Soft
By the same developer:
Super Star Soldier

A part of Hudson's legendary *Star Soldier* series in all but name, *Vertical Limit* is perhaps the most effective (and obvious) use of the Virtual Boy technology. As the title suggests, it's a vertically scrolling shooter with one unique twist: you can switch between two planes of depth at the touch of a button. While it's arguable that the game could have been achieved just as effectively on 'normal' consoles, the visual trick is undeniably impressive.

Virtual Boy Wario Land
Released: 1995
Published by: Nintendo
Created by: In-House
By the same developer:
Galactic Pinball

Often cited by hardcore fans as the best piece of software available on the machine, *Virtual Boy Wario Land* follows on from the excellent Game Boy title and sees Mario's arch-nemesis searching for treasure in the Amazon. While it plays like a fairly traditional platformer and showcases Wario's penchant for wearing ability-giving headgear, the Virtual Boy's unique display is utilised to create gameplay situations



Red Alarm
Released: 1995
Published by: Nintendo
Created by: T&E Soft
By the same developer:
T&E Virtual Golf

Otherwise known as 'that game that looks like *Star Fox*', *Red Alarm* is one of the only 'true' 3D titles available on the system. However, due to the limitations of the hardware, it displays wire-frame graphics rather than 'filled' polygons. Still, the effect is striking and despite the undistinguished reputation of the developer, *Red Alarm* is actually pretty good fun to play. It's still a distant second to the illustrious *Star Fox*, though

Mario Clash
Released: 1995
Published by: Nintendo
Created by: In-House
By the same developer:
Mario's Tennis

Alongside the simplistic *Mario's Tennis*, this is the only other Virtual Boy title to feature Nintendo's famous plumbing mascot. Rather than replicate the gameplay of the 'classic' Mario adventures, it instead apes the single-screen blueprint laid down by the ancient *Mario Bros.* It's very easy to pick up and is incredibly addictive, even if the repetitive nature of the gameplay makes it more of a short-burst proposition

Panic Bomber
Released: 1995
Published by: Nintendo
Created by: Hudson Soft
By the same developer:
Bomberman

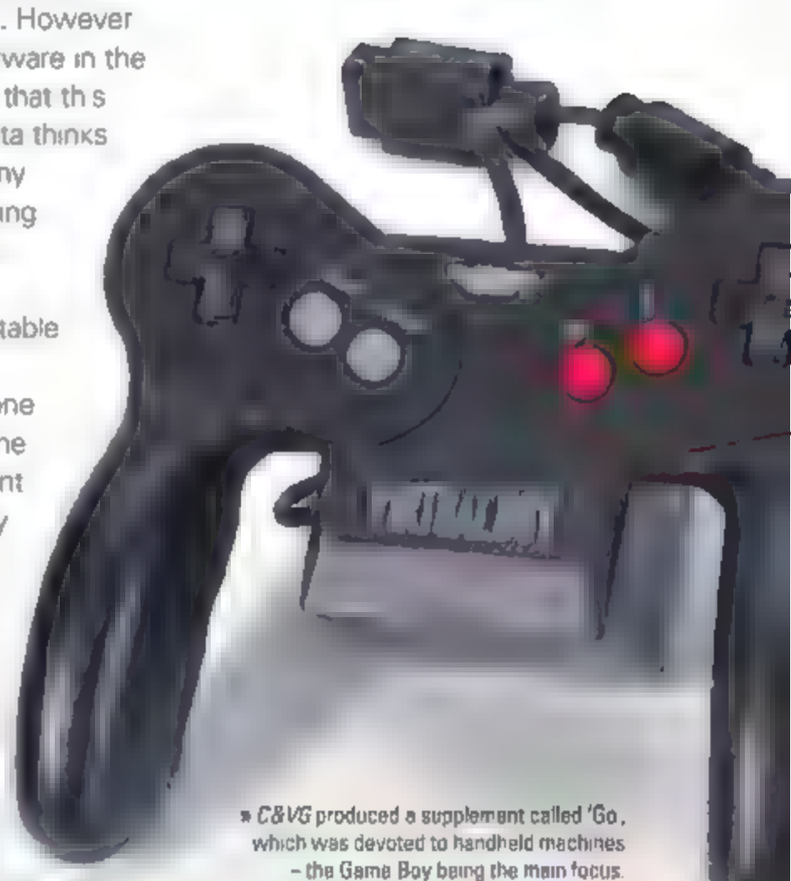
Although it features Hudson's most famous creation, Bomberman, this isn't your usual bomb-based outing – like the PC-Engine version before it, *Panic Bomber* is a *Puyo Puyo*-style puzzle title. While the 3D effect generated by the Virtual Boy has no actual bearing on the gameplay, *Panic Bomber* is nevertheless a marvel to behold. The only real drawback is that it doesn't contain a two-player option – what a shame.

ded cated 3D hardware," comments Plumb. "3D hardware acceleration was just starting to blossom at the time and required too much power to incorporate into what was essentially a portable device. So, the Virtual Boy had a standard NEC810 processor with a couple of other chips to handle rendering sprites and sound." While it might have been lacking from a technological viewpoint, elsewhere it was genuinely ground-breaking, take the unique controller – which arguably had a massive influence on the design of the N64 pad – for example. "It has extensions that you grip with the palm of each hand," says Plumb. "Most controllers of the day were designed to sit in your fingers." The controller also features two D-pads – something that would later be mimicked by the twin analogue sticks of the PlayStation Dual Shock. "I really liked the Virtual Boy controller," admits Wota. "I thought it was ergonomically designed to meet the needs of all kinds of potential game designs."

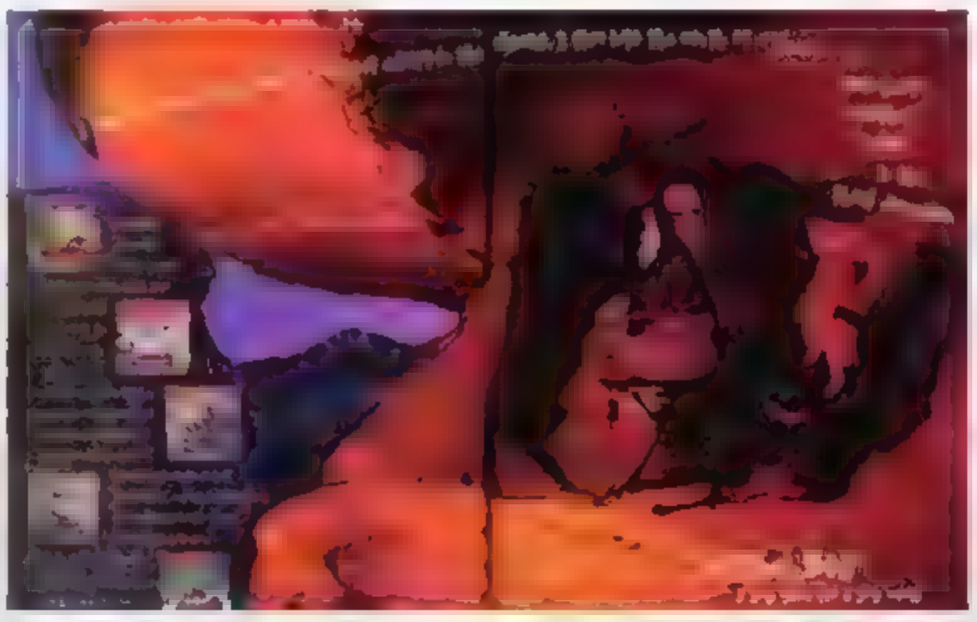
When the Japanese launch arrived on 21 July 1995 it heralded some unusual scenes. The anxious queues of hardcore fans that greeted the launch of the Super Famicom in 1990 were suspiciously absent and day-one reports suggested that stores failed to shift all of their Virtual Boy consoles – something that is almost unheard of with a Nintendo hardware release, even to this day. This was despite the fact that the console had seen its initial RRP slashed from ¥19,800 to ¥15,000 – an attempt by Nintendo to make it "more appealing to a wider range of gamers".

The reasons for this dismal debut were manifold, but perhaps the most important was the lack of truly killer software, while the opening salvo of titles was fairly enjoyable, there was no *Super Mario World* or *F-Zero* to convince people the machine was worth owning. Third-party support – usually so muscular with Nintendo hardware – was suspiciously light on the ground, and it transpired that this was largely down to Yamauchi's orders. In a somewhat misguided attempt to ensure that the Virtual Boy only got the very best standard of software, he made sure that only a select few companies were shown the technology and permitted to sign up for development. It was a bizarre method of 'quality control' that ultimately backfired, as the system struggled to gain any kind of third-party support after its catastrophic opening week sales – in fact, only 22 games were ever produced in its entire life span.

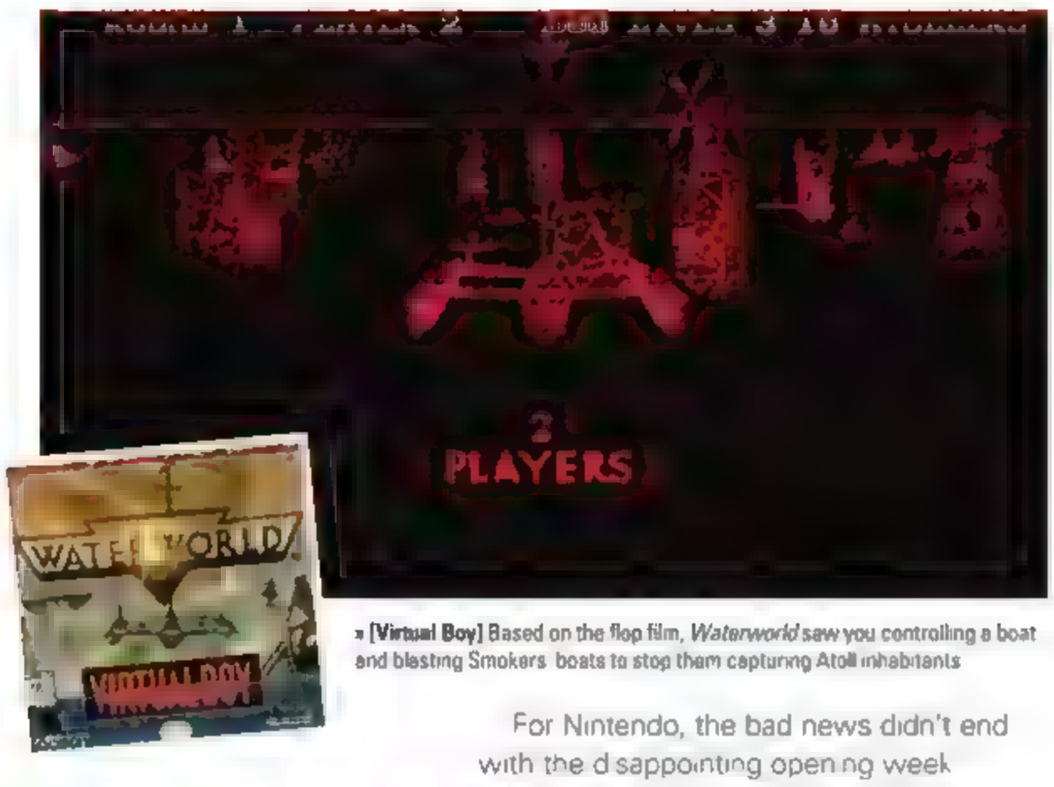
The system's position within Nintendo's catalogue also caused bewilderment. People had been expecting the next Game Boy and the fact that 'out of the box' the Virtual Boy was only able to run when powered by six AA batteries seemed to confirm its portable nature. However after seeing the finished hardware in the flesh it was painfully obvious that this wasn't a mobile system. Wota thinks that in this regard the company was probably guilty of not being transparent enough with the aim of the project. "What Nintendo really meant by portable is 'transportable' in that you could carry the device from one stationary place to another," he says. "They never really meant 'portable' as in the Game Boy or DS type of portability. Imagine if you were to try and play the game while walking around you'd fall down the stairs or bump into a wall."



» *C&VG* produced a supplement called 'Go', which was devoted to handheld machines – the Game Boy being the main focus.



» Virtual Boy adverts failed to convey its unique stereoscopic 3D aspect.



» **[Virtual Boy]** Based on the flop film, *Waterworld* saw you controlling a boat and blasting Smokers' boats to stop them capturing Atoll inhabitants

INSTANT EXPERT

Only 22 games were ever officially released for the system. Of those 22, 18 were released in Japan and 14 in North America

The Virtual Boy was never officially released in Europe

Nintendo spent a whopping $25 million attempting to promote the machine in the US

Ironically for a system that only has 22 games in total, the Virtual Boy has two versions of *Tetris*: *3D Tetris* and *V-Tetris*

On the Japanese version of the machine, the connector, which would have enabled the link cable to be used, is called the 'EXT port'. However, on the US model it is accompanied by the words 'Play Link'

Although the Virtual Boy's twin D-pad setup was revolutionary at the time, only three titles (*Red Alarm*, *3D Tetris* and *Teleroboxer*) made proper use of both pads

The eyepiece of the Virtual Boy is made of neoprene and can be removed for cleaning

The Virtual Boy's stand is notoriously fragile and second hand units often display cracks in the plastic that holds the legs in place

Only 140,000 units were sold in the US, with 630,000 making their way into Japanese homes (and probably the back of the cupboard not long after that)

Nintendo advised parents that children under the age of seven should not be allowed to play the Virtual Boy – apparently the 3D effect could damage their still-developing eyes.

For Nintendo, the bad news didn't end with the disappointing opening week sales. Those consumers who took the plunge and made a purchase, complained of headaches after prolonged use. This was possibly a side effect of the harsh red visuals, but it's just as likely that these users weren't adjusting the focus settings correctly. "Because the distance between the left and right eye is different for everybody, the Virtual Boy had to have a way for the user to adjust the independent spinning mirrors," explains Woita. "The knob at the top of the device would let you adjust what you see in the same way that you adjust a pair of binoculars to visually feel comfortable for your eyes." Nausea was another apparent side effect, but again this was probably down to users failing to calibrate the hardware properly – while the images generated by the Virtual Boy had the potential to cause sickness, programmers made efforts to ensure that this unwelcome feature was not included in the finished software they produced. "You could display whatever you wanted in each display," explains Plumb. "The hardware did not force any correspondence at all. I'm sure that if you displayed images that were too outside what the brain is used to seeing then it would be somewhat stressful to experience." To prove this point, Woita recalls a moment during the production of *Waterworld* when proper procedure wasn't followed: "When we were tuning the horizontal distances between the left and right eye, our manager took a copy of the game to the test lab without us knowing and the testers got a little bit queasy. Of course, this all got fixed the next day."

These scare stories – combined with Nintendo's own admission that using the system could damage the eyesight of children under the age of seven – did much to harm the public perception of the console, but hindsight has proved that the vast majority of owners could play their machines without experiencing any of these problems. Still, there was no getting away from the fact that the Virtual Boy was not a particularly comfortable console on which to game, it required the user to adopt a hunched, seated position, which led to further complaints of neck strain. Compared with the glorious liberation offered by the Game Boy, these issues made the Virtual Boy look distinctly non-user-friendly. It didn't help that Nintendo made some significant blunders with other vital aspects of the console, too. Although the system showcased an 'EXT Port' interface, which would allow two machines to be linked together (a feature that arguably contributed to the Game Boy's incredible mass-market success), a link cable was never produced. "A two-player cable was in the works," reveals Plumb. "I remember working with *Waterworld*'s Head-to-Head mode, but in the end this feature was dropped from our plans for the game pretty early in production, as the cable didn't appear."

Despite the Virtual Boy's frosty reception in its homeland, Nintendo continued to plan the US release. However, this time it was eager to enlist support from as many third-party developers as possible. "Nintendo was great to work with all along the way," admits Woita. "They had a two-day development conference up in Seattle before the US launch and I learned about some cool new features that had never been found in a gaming device before, nor since. I've worked on so many different types of consoles and development environments and I must say the Virtual Boy was a very interesting console to develop for. You'd compile your code on the VB development box that was hooked

» A small selection of games for the Virtual Boy – in total, only 22 titles were ever released for it

» This one-off edition of *Virtual Boy Tsushin* magazine was produced to commemorate the launch of the console in Japan

to your PC and then you'd slide your head over to the Virtual Boy itself to look in and see what your change d d, then you'd move your head back over to your PC screen, recompile and repeat the process "

The Virtual Boy hit American store shelves in August 1995 and it was we comed by the same consumer apathy that greeted its launch in Japan. Nintendo of America tried to rema n confident and boasted of a complete sell-out, but what the company fai ed to d sclose was that many of the larger e ectronics chains had taken as little as two units per store. As if to conf rm the lack ustre retail performance of the console, the price was swiftly slashed from $180 to $159 before dropping to an off cial RRP of $99 in May 1996 When this failed to shift stock, stores took it upon themselves to drastically discount the system and it has been reported that V rtual Boys were changing hands for as ittle as $20 in some parts of the US In total just 800,000 units had found their way nto the homes of gamers worldwide – way short of Yamauch 's modestly predicted 3 million, and as you might expect, such dire performance in the Japan and US effectively destroyed any chance of a European release. It was a disaster of tru y epic proport ons and the impact it had on Nintendo's status in the videogame ndustry was cons derab e

Of course, someone had to take the blame and that person was Gunpei Yoko The man who had generated untold wealth for Nintendo thanks to an astonishing string of high-profile successes (including the Game & Watch series and the Game Boy) fo nd that his reputation was in tatters and rumours suggest that he was treated like an outcast within the walls of Nintendo's Japanese HQ. He took the failure of the console incred bly personally and left the company under a cloud in August 1996 to form his own stud o (a seismic act that caused nervous traders to offload N ntendo shares so vigorously that the Tokyo Stock Exchange had to cease trading), which went on to collaborate with Banda on the Game Boy rival WonderSwan Sadly, he never saw the latter machine make it to the market – he was tragically k lled n a roadside accident n 1997 He was 56 years old

Although coming up with an explanation for the failure of the Virtual Boy seems simple enough, many of the reasons behind its poor performance are more subtle than you might otherwise expect "I think the antisocial nature of the machine was the main issue," comments Plumb "In my opinion, even with a full-colour display and fantastically powerful 3D hardware, users would be reluctant to accept it as a day-to-day system because of that." Woita has his own take on the fiasco: "I'd go into a toy store and see the Virtual Boy display set up and nine out of ten times it would be broken, so point of purchase wasn't working for it and the only way you can really sell this unit is to try it first hand TV commercials couldn't do the machine justice because the TV couldn't show the Virtual Boy's cool 3D capability "

The console lasted less than a year before Nintendo unceremoniously switched off the life support, and bearing in mind that most videogame hardware doesn't really hit its stride until at least a couple of years into its life span, is it possible that the Virtual Boy could have improved had it been given opportunity to shine? "Most definitely," insists Woita. "The whole Virtual Boy development community at the time was cutting their teeth on their first round of games. It takes a few years to start figuring out tricks that allow you to squeeze the most out of a given platform "

Despite the negative reputation that the machine has, it's surprising to find that those who have had the chance to work with it have positive things to say "The Virtual Boy was a fantastic piece of technology," says Woita. "We just started to scratch the surface of what could be done and I was really excited about creating games in what I would call closer to real 3D then we 'see' now "

Over the years, Nintendo's attitude towards its unwanted child has warmed slightly The Virtual Boy has made some notable appearances in the *WarioWare* series – Virtual Boy title *Mario Clash* is one of the mini-games in the Game Boy Advance version, for example. The machine itself is now a highly valued collector's item among dedicated Nintendo aficionados and merely owning one grants you entry to the upper echelon of fandom It may have been a non-starter, but there is one thing you simply cannot deny when talking about the Virtual Boy. It was a truly unique experience, the likes of which we may never see again

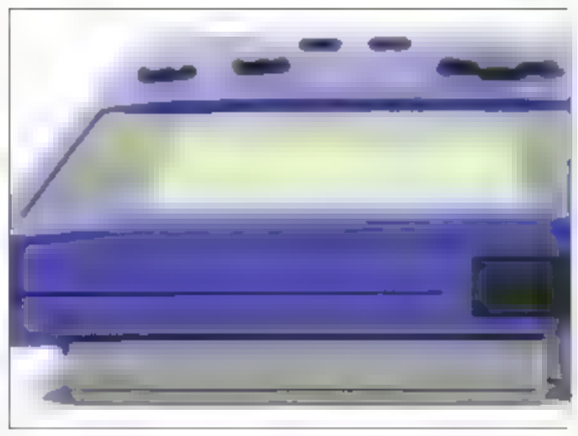
Thanks to **videogameimports.com** for supplying the hardware and software used to create this feature

VIRTUALLY THE SAME

Incredibly, the Virtual Boy has been emulated by industrious coders whose creations actually offer a fairly good impression of what it's like to play the real thing. "The best known and most up-to-date emulator these days is 'Reality Boy' by David Tucker," explains Planet Virtual Boy's Christian Radke. "It offers pretty high compatibility, some debug features and even rudimentary emulation of the EXT Link Port over TCP/IP. The official Link Cable has never been released and therefore no commercial games support it, but there are some homebrew games that do so and more will follow. The 3D effect can be replicated in several ways on the emulator. You can use Shutter Glasses, a CyberScope, over/under or side-by-side goggles, or a wide range of two-colour 3D goggles, like red/blue. Nothing comes close enough to the 3D of the Virtual Boy, though, so most people prefer the real thing."

» Another abstract advert for the Virtual Boy Note the complete absence of screenshots

» The Virtual Boy's stand was notoriously fragile, so many second hand models will have cracks.



GAMEBOY COLOR
Pong
THIS SIDE OUT
CE COTÉ À L'EXTÉRIEUR
AUSSEN, SO BLEIBT DIE SEITE

Year released: 1998

Original price: £80

Buy it now for: £5-£10

Associated magazines: Nintendo Official Magazine

Why the Game Boy Color was great... The Game Boy Advance was released so soon after the Game Boy Color that many of its best games were lost in the rush to upgrade to the 'next big thing'. Returning to the GBC now reveals a wealth of great games that you never knew existed, especially those available on import... besides, if you want to train a monkey to box in between sending it out for curry then you can only do it on the Game Boy Color

GAME BOY COLOR

AFTER RELYING ON THE ORIGINAL GAME BOY FOR OVER NINE YEARS, NINTENDO FINALLY UPGRADED TO A COLOUR MODEL, ONLY TO REPLACE THE MACHINE TWO YEARS LATER. ASHLEY DAY LOOKS AT ONE OF NINTENDO'S MOST SHORT-LIVED CONSOLES AND SHOWCASES THE GAMES YOU MIGHT HAVE MISSED THE FIRST TIME AROUND

Rumours of a colour Game Boy began to circulate almost as soon as the original monochrome handheld was released in 1989. Atari's Lynx proved that colour gaming was possible on the move, which prompted some to question why The Big N chose the less-impressive black-and-white route. Nintendo's answer, as always, showed that it had done its homework. Colour handhelds, although possible, were not practical: the massive drain on batteries and reliance on oversized hardware forced the user to play at home (close to a plug socket) and completely defeated the point of a portable games console.

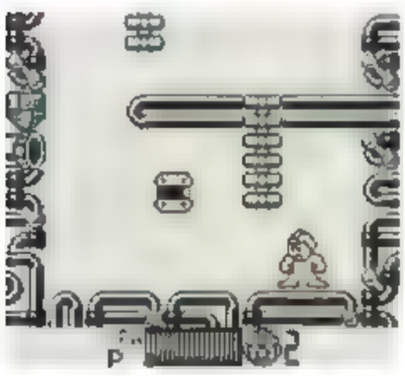
Nintendo chose instead to produce a handheld that was cheap to run and light enough to carry around, pledging to only upgrade the console when technology caught up with demand. That strategy proved more than wise as the Game Boy went on to sell over 70 million units despite the lack of colour. A string of hits from Nintendo's familiar brands, as well as new properties like *Pokémon*, ensured that the handheld fought off all competition and stayed in the hands of gamers for the next nine years until technology finally caught up.

By November 1998 Nintendo made good on its promise and revealed the Game Boy Color to the world at that year's E3. The console originally used a tech demo, featuring schools of multicoloured fish, that clearly showed how advanced the handheld was in comparison to its forebears. By featuring a crisp 256x256 pixel TFT (Thin Film Transistor) screen the GBC could output vibrant colour visuals, without eating the batteries, while also keeping the machine small and light. In addition, the processor was twice as fast as the original Game Boy, 56 colours could be displayed from a palette of 32,000 and the unit included an infrared device that could wirelessly transfer data between two machines. Since various coloured machines

Hardware Homebrew

As console manufacturers move on to better hardware, the homebrew community is often left to discover what more can be squeezed out of an ageing system and the Game Boy Color is no exception. The portability of the device has proved especially attractive to the homebrew developers who have managed to use the GBC for many purposes that Nintendo never dreamed of. Most impressive of these is surely the GPS BOY, a Global Positioning System that uses a custom piece of software to communicate with a GPS receptor board to display the user's current position on a full-colour on-screen map. Some receptor boards are now so small that they barely protrude from the Game Boy Color's cartridge slot. If you fancy converting your Game Boy Color into a cheap GPS device then head over to **http://members.fortunecity.com/kookie** where you can download the ROM and read a handy tutorial.

Spain's *Club Nintendo* magazine got rightfully excited about the motion sensing *Kirby Tilt 'N' Tumble*



An example of a monochrome Game Boy game running on the Game Boy Color

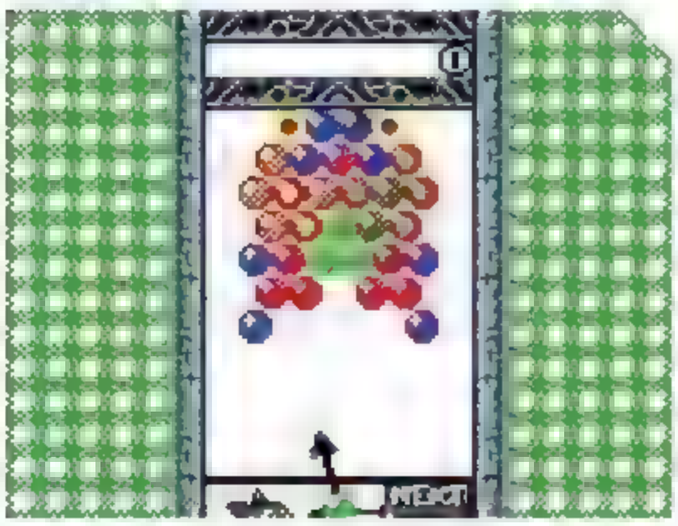
had proved successful for Nintendo in the past it planned to release the GBC in six different colours with more to follow The first six were Atomic Purple, Berry, Teal, Dandelion, Lime and Grape although only Atomic Purple initially made it to Europe in time for launch

With the GBC's impressive specs and long battery life (from only two AA batteries) Nintendo fans were eager to see what games were in store for them, but some were disappointed as the first batch of releases did little to take advantage of the new handheld's power As with the transition from NES to SNES, Nintendo was reluctant to alienate those who had stood by the Game Boy for so long, and implemented a backwards compatibility system that turned out to be both a blessing and a curse The Game Boy Color was fully backwards compatible, making it capable of playing thousands of classics straight out of the box in a simple colour scheme Many of the original Game Boy games had a default colour palette, which Game Boy Color made use of to ensure that Kirby stayed pink and Yoshi green, for example Those games that did not have a default colour scheme could be altered by holding down different combinations of buttons upon powering up the machine, although this did have its drawbacks as the palette always coloured the sprites differently from the background which meant the games that tried to surprise the player, by having sprites suddenly move, didn't quite work as intended

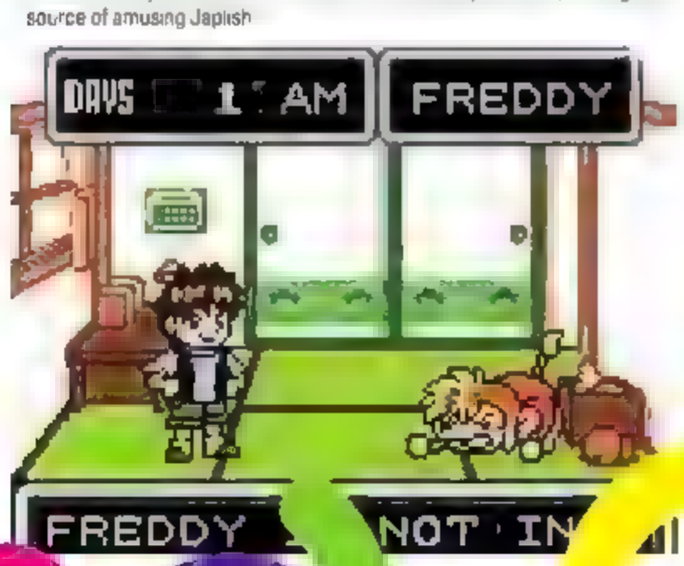
The backwards compatibility was a first for any handheld and a smart move, but Nintendo took the plan a step further and ran the risk of angering those who had paid the £80 asking price for the GBC. To ease the move from monochrome hardware to the Game Boy Color the first few games would be playable on the original Game Boy in black-and-white. This meant that owners of the 'Game Boy Classic' could enjoy the new games without feeling pressured into upgrading but, frustratingly, it also meant that early adopters of the GBC had to make do with launch titles that didn't take full advantage of the handheld's capabilities. Early titles like *Tetris DX* and *Link's Awakening DX* were decent enough, but some gamers couldn't help but feel that they were playing monochrome games that had been 'coloured in'. This continued until the release of *Super Mario Bros DX* (1999) a cartridge that used the full power of the GBC to perfectly re-create a portable version of the NES classic for the first time

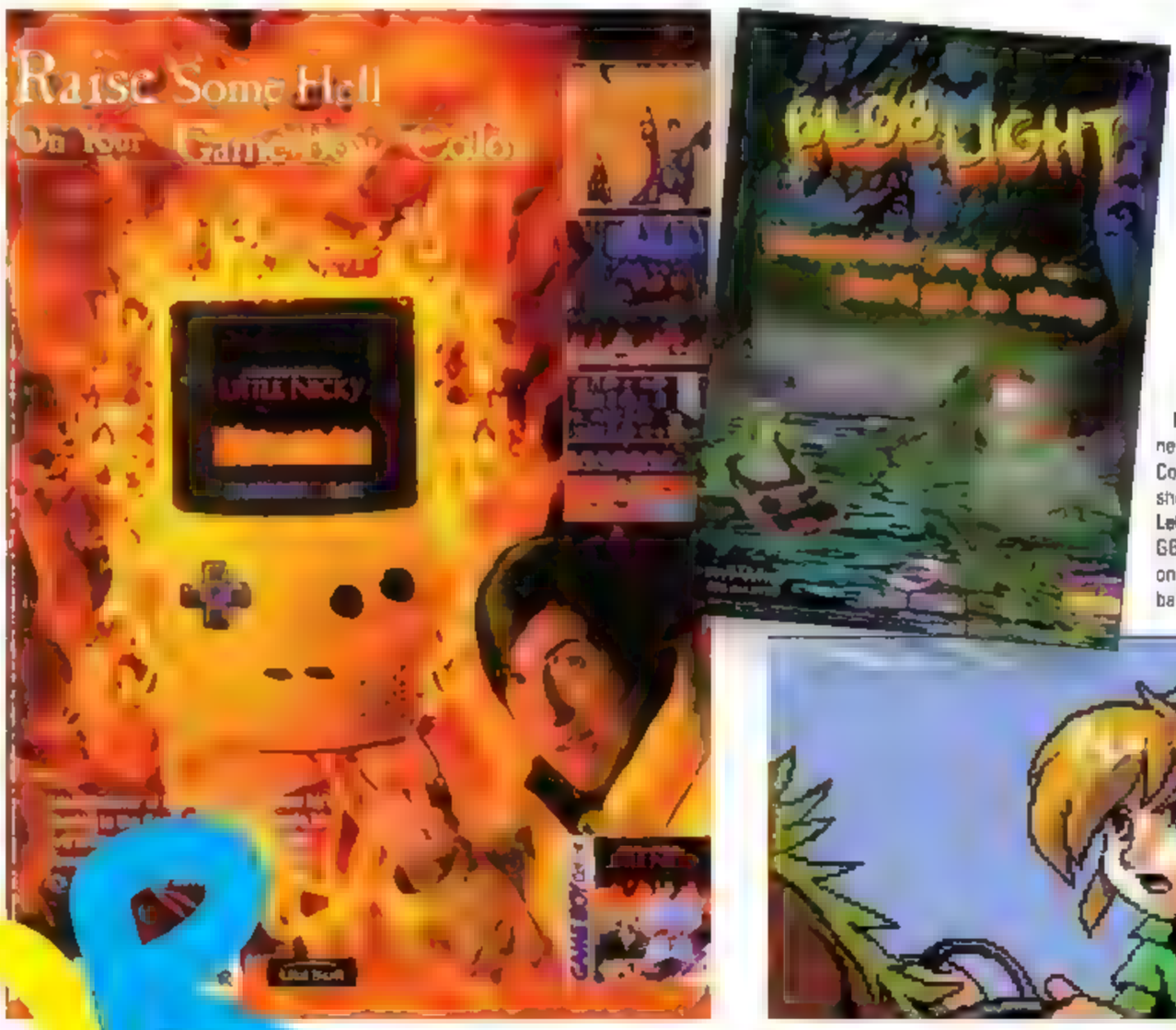
Quality software was finally beginning to appear, but the Game Boy Color hadn't quite captured the hearts and wallets of portable gamers just yet as it faced its stiffest ever competition. Although the previous Game Boy had enjoyed an unbelievable 99 per cent market share, the new console was up against two new rivals that were carving major inroads towards Nintendo's once-captive audience. Bandai's

Some games, like *Bust A Move*, benefited from the colour upgrade more than others

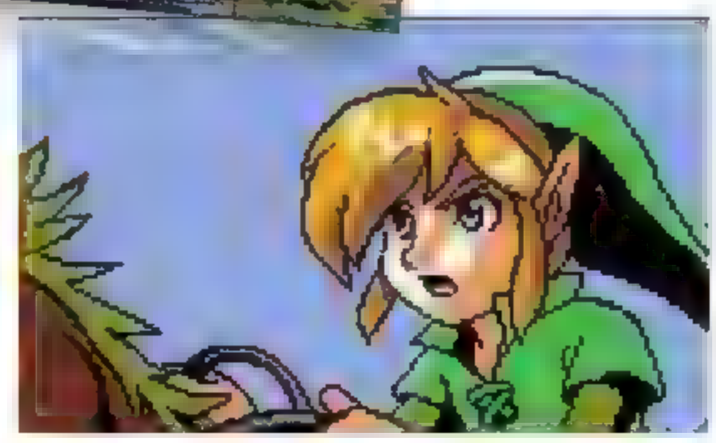


Taito's *Monkey Puncher* is one of the GBC's best-kept secrets, and a great source of amusing Japlish





Far left: If proof was ever needed that the Game Boy Color was a magnet for shovelware then this is it **Left**: An advert for one of the GBC's many flood light add ons highlights the lack of a backlight in the handheld



Capcom actually put three GBC *Zelda* games into production, but unfortunately only two could make it to release

COLOR

COLOR

WonderSwan exploited Nintendo's rocky relationship with Squaresoft by securing the rights to all portable versions of *Final Fantasy* and captivated the Japanese market in the process. SNK meanwhile had a handheld of its own, in the shape of the Neo Geo Pocket, which was very popular with hardcore beat-'em-up fans. Nintendo needed a strong, system-selling game if it was to fend off these two considerable enemies. It needed a 'killer app'. It needed 'Pokémania'.

With well over 16 million copies of the original *Pokémon* sold by 1998, the popular RPG can take sole credit for saving the monochrome Game Boy from obsolescence. The original game had spawned a worldwide addiction for all things *Pokémon*, and kids across the globe hungrily consumed anything with Pikachu's face slapped on it, but what they really wanted was a brand new Game Boy adventure. After all, even though Nintendo had exploited the *Pokémon* brand to the nth degree, the original RPG by Game Freak was still a very compelling and highly polished game. *Pokémon Gold* and *Silver* were released in 1999 in Japan, 2000 in the USA and 2001 in Europe. The considerable gaps in release dates can be attributed to the time needed to translate the in-game text, but Nintendo had the added bonus of prolonging the Game Boy Color's life span on a global scale. The new *Pokémon* did the trick, and even though it could be played on a monochrome Game Boy, Pokémaniacs all over the world bought a Game Boy Color just so they could see their favourite Pocket Monster in the correct hue. Sales of the handheld, helped by a '*Special Pokémon Edition*' skyrocketed and by 2001 had reached an estimated 50 million units.

With sales of the Game Boy Color guaranteed by *Pokémon*'s colour debut in 1999, the machine started to receive much more support from third-party developers. The handheld had previously been littered with shovelware (mostly sports games and cartoon licences), but the major developers soon realised that there was major sales potential in the GBC and started to take the handheld seriously. Konami offered an original adventure called *Survival Kids* as well as an exclusive *Metal Gear* game, Rare created a handheld *Perfect Dark* and ported the SNES's *Donkey Kong Country* while Capcom ported *1942* and *Street Fighter Alpha* and even created a GBC *Resident Evil* game that debuted in the UK. Not all of these games stood up to the high standard that their names suggest, but some of them were excellent and showed that the Game Boy Color had more to offer than just Nintendo franchises and children's games.

By 2001 the Game Boy Color was just beginning to hit its stride. Sales of the machine were healthy and both Nintendo and third parties were turning out some great software until the life span of the handheld was cut short when Nintendo released its next-generation handheld: the Game Boy Advance. The GBA arrived in Europe on the 22 June 2001, only two and a half years after the Game Boy Color, making the GBC Nintendo's shortest lived console after the Virtual Boy. Quite why Nintendo chose to supersede the capable hardware so soon after its launch is still a mystery and remains a questionable decision.

As the Game Boy Advance naturally gathered momentum the Game Boy Color stayed in production for a short while. At the slightly reduced price of £60 it cost half as much as the GBA, making it an affordable alternative to the new Game Boy and it quickly became the handheld that parents opted to buy for very young children who would not notice or care about the difference in performance. As such, most publishers returned to the safe market of cartoon licences, but there were still some worthwhile releases in the GBC's final months. Most valued of these were two new *Zelda* games: *The Oracle Of Ages* and *The Oracle Of Seasons*. Each was co-developed by Nintendo and Capcom and they were considered such great additions to the *Zelda* series that many Game Boy Advance owners happily bought them despite their being developed for a technically inferior machine. Development continued, but due to the diminishing popularity of the console, many new games were only released in certain territories. The US got Enix's *Dragon Warrior III*, for example, while Japan got several *Dance Dance Revolution* games in 2001 and three exclusive *Goemon* (*Mystical Ninja*) games. One of the greatest Game Boy Color games to make it to Japan and the States (but not Europe) was the innovative *Kirby Tilt 'N' Tumble*, a *Marble Madness*-style game that actually required the handheld to be tilted in order to roll Kirby around the stage. *Tilt 'N' Tumble* will only work on the first model of Game Boy Advance so if you have a GBA SP or a Micro then it's worth investing in a Game Boy Color just to play this highly inventive Nintendo title.

The final Game Boy Color game was, *Hamtaro: Ham Hams Unite*, released in Europe in January 2003 a little over four years after the launch of the hardware. As with many of the GBC's last games, Hamtaro was lost amid hundreds of Game Boy Advance games and was sadly overlooked by most gamers. This has given the Game Boy Color an unfair reputation as the one Nintendo handheld with few worthwhile titles, but this simply isn't the case. Dig around for the games that made it out between 2001 and 2003 and you are sure to find many lost gems that, although overlooked, were great titles well worth your attention.

Something in the air

Think Game Boy Color's infrared link was an under-used gimmick? Well, with a two-inch range it mostly was, but that didn't stop developers trying to get some kind of functionality out of it. Here are some of the most interesting uses:

Super Mario Bros DX
Merge high scores
Pokémon Gold/Silver
Trade Pokémon
Mission Impossible
Point a TV remote at the GBC to clone its signal then use your GB to control the TV
Austin Powers
Beam secret messages to an opponent (not very useful when you're sitting next to each other)
Robopon
Point a TV remote at the GBC to open unlockable quests
Bomberman Max
Each unique signal from an infrared device unlocks a different secret area
Pokémon Crystal Link up to the cyberpet Pocket Pikachu Color to unlock hidden items and monsters
Perfect Dark
Exchange unlocked multiplayer maps
Dogz
Trade dogs and toys

Super Mario Bros DX was the first full-colour *Mario* game to appear on a handheld.

The Game Boy *Resident Evil* was originally a port of the PlayStation version, but was canned due to poor playability.

GAME BOY COLOR

PERFECT TEN GAMES

It may have had a short production run but Nintendo's Game Boy Color still had plenty of great games available for it, from *Resident Evil Gaiden* to *Metal Gear Solid*. Of course, any top ten is entirely subjective and open to violent debate

01

THE LEGEND OF ZELDA: LINK'S AWAKENING DX

- RELEASED:
- PUBLISHED BY:
- CREATED BY:
- BY THE SAME DEVELOPER:

01 We felt cheated when Nintendo's deluxe version of *Link's Awakening DX* appeared. After all it was essentially a five year old Game Boy game albeit with one brand new dungeon, Game Boy Printer support and full colour graphics. Nevertheless *Link's Awakening* remains as captivating as ever, and once you get drawn back into its beautifully crafted game world you'll never look back. Link's quest to wake the Wind Fish is filled with memorable characters, well designed dungeons and the sort of magical gameplay that Nintendo seems able to create with its eyes shut. A great RPG that will please Zelda fans the world over.

POKÉMON GOLD/SILVER

- RELEASED:
- PUBLISHED BY:
- CREATED BY:
- BY THE SAME DEVELOPER:

02 GBC's first two *Pokémon* titles not only gave you gloriously coloured critters to battle with, they also brought several excellent new gameplay mechanics to the table – the most ingenious being a real-time clock. Pokémon and certain events now appear at specific times of the day, giving *Gold* and *Silver* a reality missing from previous *Pokémon* titles. Another handy new feature was the addition of the cell phone, which made it easier to keep in touch with key characters. You were even able to breed Pokémon, although sadly it was impossible to create mutant offshoots. The end result is a sprawling adventure that no RPG or *Pokémon* fan should be without.

02

SUPER MARIO BROS DX

- RELEASED:
- PUBLISHED BY:
- CREATED BY:
- BY THE SAME DEVELOPER:

03 *Super Mario Bros DX* is yet another great example of Nintendo taking a game from its impressive back catalogue and revitalising it for a brand new generation of gamers. Not only did you receive a perfect port of Mario's first real adventure, Nintendo also included extras to ensure that it deserved its 'deluxe' tag. Challenge mode required you to complete all of the levels, collecting five red coins and a Yoshi egg within a time limit, while versus mode was a race against a mate that made full use of the GBC's link up cable. Unmissable.

METAL GEAR SOLID

- RELEASED:
- PUBLISHED BY:
- CREATED BY:
- BY THE SAME DEVELOPER:

04 Despite abandoning the single-screen cel-based design of previous 2D instalments, *Metal Gear Solid* (aka: *Ghost Babel*) is regarded by most as one of the GBC's finest releases. It takes the best elements from previous games, and adapts them to work within the GBC's limitations. There are now individual connected stages, which eliminates backtracking and allows shorter bursts of play. Plenty of well implemented stealth sections, a bountiful roster of gadgets and weapons, an assortment of wonderfully depraved bosses, plus the expected story line of betrayal and moral ambiguity, make for the perfect handheld adventure.

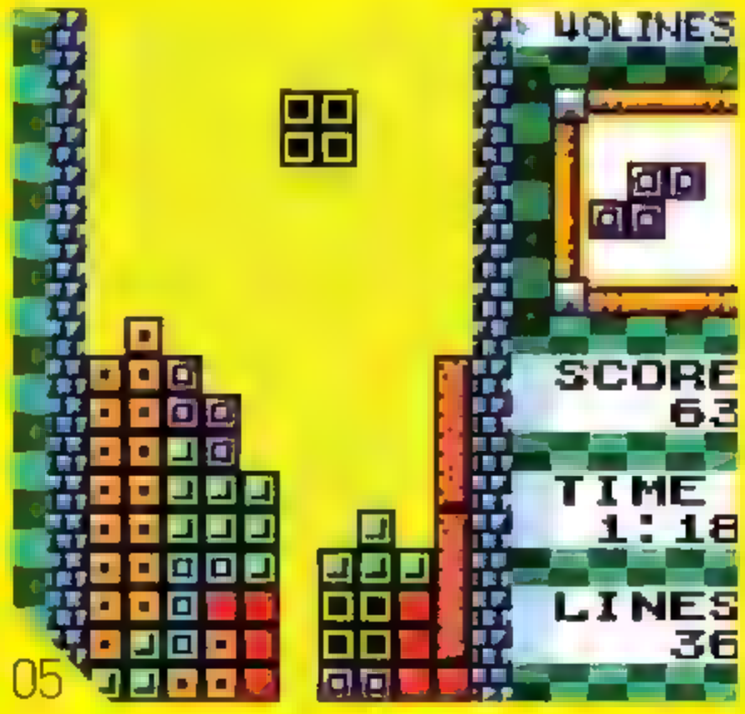
TETRIS DX

- RELEASED:
- PUBLISHED BY:
- CREATED BY:
- BY THE SAME DEVELOPER:

05 You seriously have to hand it to Nintendo, it certainly knows how to get people to part with their hard-earned cash. *Tetris* was already owned by practically everybody that had access to a Game Boy (it was originally given away free with the machine) but people still went crazy when *Tetris DX* was eventually released. Not only could you now play the game in fantastic colour, but Nintendo had also included a variety of new gameplay modes that made the popular puzzler even more hellishly addictive than it already was. You would be doing yourself a disservice if you let this one pass you by.

03

04



05

06

R-TYPE DX

- **RELEASED:**
- **PUBLISHED BY:**
- **CREATED BY:**
- **BY THE SAME DEVELOPER:**

06 Shoot-'em-up fans got real value for money with *R-Type DX* as it came equipped with five variations of Irem's hit blaster You get both the colour and black and white versions of *R Types I* and *II* and Bits created the all new *R Type DX*, an amalgamation of the first two games with spruced-up graphics, some nifty parallax scrolling and a new level to fight your way through.

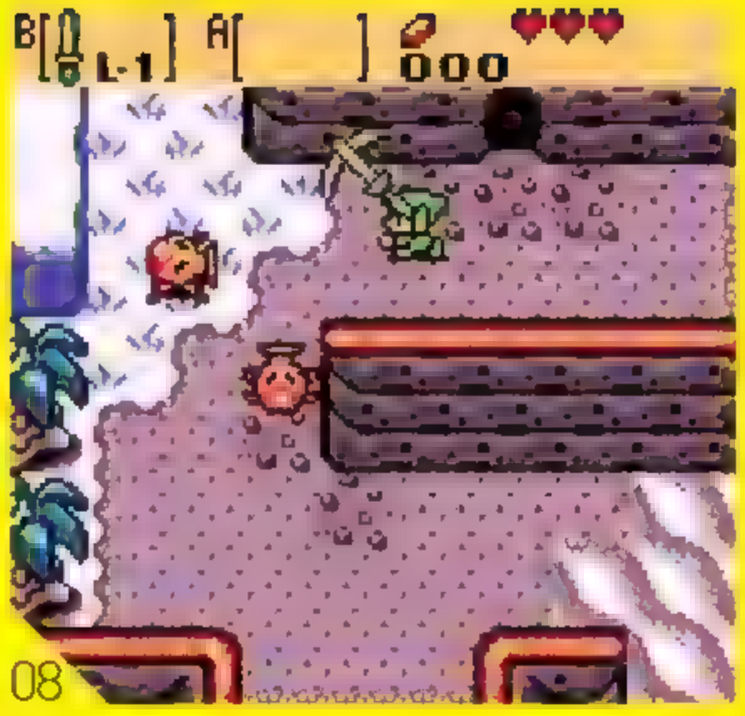
Of course *R Type DX* wasn't without its problems (the GBC's small screen meant that certain parts of the game were particularly tricky to navigate), but there's no denying that it remains one of the greatest shooters available for Nintendo's portable system.

07

WARIO LAND 3

- **RELEASED:**
- **PUBLISHED BY:**
- **CREATED BY:**
- **BY THE SAME DEVELOPER:**

07 Now more famous for his *WarioWare* franchise, Nintendo's antihero has starred in a superb selection of platformers. Wario's third Game Boy outing is widely considered as best. The graphics feature huge, well drawn sprites complete with fantastic animation. Wario now has several new transformation skills and there are plenty of new gameplay touches such as levels that switch between night and day after they are completed. Wario doesn't start out with as many skills as in previous titles, but Nintendo gradually allows him to reclaim them as the game progresses. A solid and amusing platformer.



08

THE LEGEND OF ZELDA: ORACLE OF SEASONS/AGES

- **RELEASED:**
- **PUBLISHED BY:**
- **CREATED BY:**
- **BY THE SAME DEVELOPER:**

08 Released simultaneously, *Oracle Of Seasons/Ages* featured detailed visuals, memorable music and plenty of new items that enhanced the already-rich gameplay Both were similar in design, but they were centred on certain gameplay aspects of the *Zelda* universe. *Seasons* featured a strong emphasis on fighting, while *Ages* often required you to solve devious puzzles. They could also be started with a code that enabled you to begin either title with items and abilities gained from the previous game.

09

RESIDENT EVIL GAIDEN

- **RELEASED:**
- **PUBLISHED BY:**
- **CREATED BY:**
- **BY THE SAME DEVELOPER:**

09 Many gamers were disappointed with *Resident Evil Gaiden* as it shared little in common with its PlayStation brethren. No more spooky camera angles, no more carrying a certain number of items and no more scares. Don't be disappointed though. *Gaiden* remains a superb actioner with a gripping storyline, plenty of recognisable characters and a brand new way of destroying zombies. When you meet said zombies, the game switches to first person and shows them approaching. A power bar appears at the bottom of the screen and careful hits stop your foes and allow you to continue exploring.

STRANDED KIDS

- **RELEASED:**
- **PUBLISHED BY:**
- **CREATED BY:**
- **BY THE SAME DEVELOPER:**

10 Anyone who has played the DS sequel *Lost In Blue* will know exactly what to expect from this cult hit that combined the best elements of *Zelda* and *Monkey Island* to great effect. As a virtual castaway you must learn to survive the dangerous environment of a desert island and find a means of escape using only the materials you find lying around and the help of a native chimp. Whether exploring the island, building tools and weapons or discovering the secrets of fire, *Stranded Kids* rewards thoughtful experimentation as well as resourcefulness to create an enchanting adventure that you'll play until the batteries run dry.

10

RETROINSPECTION

DREAMCAST

A BRIDGE TOO FAR OR MISUNDERSTOOD MASTERPIECE? WHATEVER YOUR OPINION OF SEGA'S FINAL FORAY INTO THE VIDEOGAME HARDWARE SCENE, THERE'S NO DENYING THAT THE DREAMCAST IS WORTHY OF A SECOND LOOK. JOIN LIFELONG SEGA FANBOY DAMIEN MCFERRAN AS HE TEARFULLY REVISITS ONE OF THE INDUSTRY'S MOST UNDERRATED CONTENDERS

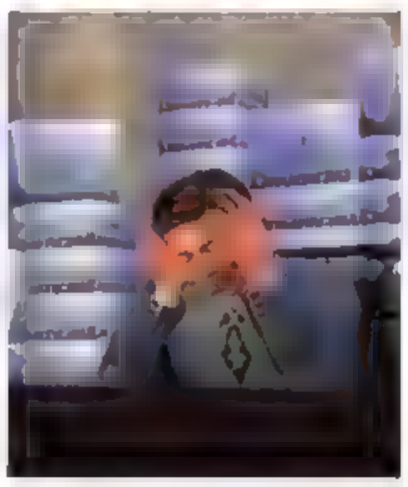
Year released: 1998 (Japan), 1999 (US/Europe)

Original price: £200 (UK)

Buy it now for: £105+

Associated magazines: DC-UK, Official Dreamcast Magazine

Why the Dreamcast was great... Sega's 128-bit console promised arcade-perfect gaming and the ability to go online for under £200. A flood of Sega classics followed and although Sony's PS2 was technically superior, it took a while for it to catch up in terms of quality games



» Yukawa Hidekazu's tortured cameo in the *Shenmue* demo ended up being prophetic in ways Sega possibly didn't imagine.

Sega's Dreamcast holds a special place in the history of home videogame entertainment. It was an innovative beast, being the first 128-bit home console to offer online connectivity out of the box and setting the modern trend for sourcing internal components from PC manufacturers. It also proved to be Sega's last entry in the notoriously difficult hardware development race and brought an end to the days when arcade conversions sold consoles. Released in 1998 the ill-fated machine was culled just three years later by a Sega undergoing seismic internal restructuring that would ultimately see the company emerge as one of the world's leading third-party software publishers.

The Dreamcast enjoyed a somewhat convoluted genesis. Back in the late-Nineties, Sega was still smarting from dismal hardware disasters such as the Mega-CD and 32X, and its Saturn console was losing the 32-bit war against Sony's PlayStation. As is usually the case when companies are against the wall, cracks began to appear inside Sega's corporate architecture. Newly appointed Sega of Japan president Shoichiro Irimajiri decided that the company's internal hardware development division was firing blanks and was determined to look elsewhere for the talent to create a new machine. This was not an entirely new stance. As early as 1995 there were rumours that the Japanese company would team up with aerospace firm Lockheed Martin to develop a new graphics processing unit (GPU), and while this proposed union came to nothing, it set the wheels in motion for further excursions abroad in search of new hardware partners.

Around 1997 Irimajiri decided to enlist the services of Tatsuo Yamamoto from IBM Austin to work on a new hardware project. The idea was that the team would operate externally and therefore be unhampered by the internal politics that were pervading Sega's Japanese HQ at the time. Not surprisingly, when Hideki Sato – head of hardware development at Sega Japan – caught wind of this, he was less than happy and made it clear that any technical production should happen within the walls of Sega's Japanese HQ. This resulted in two different teams working in secrecy on two different prototypes in two different parts of the world.

'Black Belt' was the original codename given to the machine being constructed in the US, which was based around 3dfx Interactive's Voodoo 2 graphics technology. The Japanese counterpart was initially known as 'White Belt' (later 'Katana') and made use of NEC/VideoLogic's PowerVR2 chip. Both machines utilised off-the-shelf central processors, with the American team picking the IBM/Motorola PowerPC 603e and their Japanese competitors favouring Hitachi's SH4. Ironically, despite Irimajiri's bold move of outsourcing development, it was Sato's team that ultimately won in the end with the 'Katana' prototype being

INSTANT EXPERT

The PAL Dreamcast came with a lowly 33kps modem, but the US machine boasted a faster 56kps variant. Both were later superseded by a broadband adaptor.

Sega never officially released the lightgun peripheral in the US amid fears about the negative perception of gun crime at the time.

The rather limp UK advertising campaign didn't feature any videogame footage at all, instead relying on seemingly unconnected imagery, and the vocal talents of Robbie Williams.

There is no reset button on the machine. Instead users must press all the fascia buttons and the start button at the same time to return to the boot menu.

The Hong Kong/Asian edition of the machine did not ship with a modem. In its place was an empty modem-shaped piece of plastic.

Sega had originally intended to place 8MB of RAM in the console, but it had to up this to 16MB when it found that graphical memory demands were higher than expected.

***Shenmue* is one** of the few Dreamcast games to sell over a million units, yet its commercial performance was well short of expectations and the expensive project failed to actually generate any profit.

In Japan and the US the Dreamcast swirl is orange, but it had to be changed to blue in Europe due to a German company using the exact same logo.

In an attempt to battle the PS2 Sega Europe started bundling a DVD player with the Dreamcast for the same price as Sony's machine. The ploy wasn't a success.

Sega's final Dreamcast game was 2004's *Puyo Pop Fever*.

"SEGA'S DREAMCAST WAS AN INNOVATIVE BEAST THAT CONTINUES TO HOLD A SPECIAL PLACE IN THE HISTORY OF HOME VIDEOGAME ENTERTAINMENT"

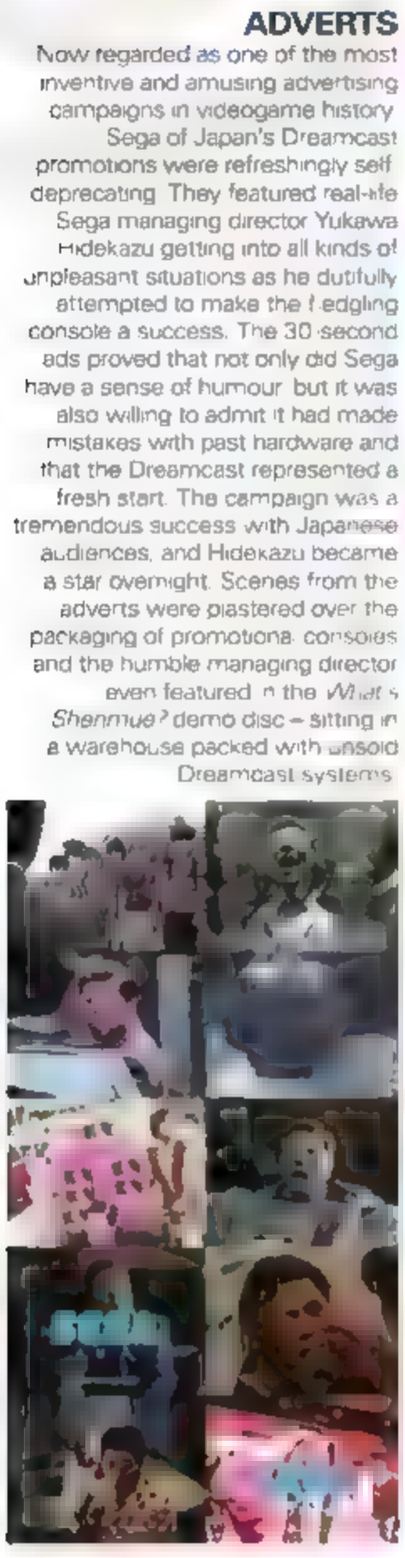
RETROINSPECTION

DREAMCAST

» Sega Japan's head of hardware development Hideki Sato

ADVERTS

Now regarded as one of the most inventive and amusing advertising campaigns in videogame history Sega of Japan's Dreamcast promotions were refreshingly self deprecating They featured real-life Sega managing director Yukawa Hidekazu getting into all kinds of unpleasant situations as he dutifully attempted to make the fledgling console a success. The 30-second ads proved that not only did Sega have a sense of humour but it was also willing to admit it had made mistakes with past hardware and that the Dreamcast represented a fresh start. The campaign was a tremendous success with Japanese audiences, and Hidekazu became a star overnight. Scenes from the adverts were plastered over the packaging of promotional consoles and the humble managing director even featured in the *What's Shenmue?* demo disc – sitting in a warehouse packed with unsold Dreamcast systems



» Capcom provided sterling support for the Dreamcast. If you were a fighting game fan and owned the machine, then you were very happy indeed

» Sega MD Yukawa Hidekazu and president Shoichiro Irimajiri hawk Dreamcasts on launch day

selected as the basis for the new machine (naturally, rumours abound that Irimajiri's move was merely a bluff in order to give the Japanese hardware division a much-needed kick up the backside) A disgruntled 3dfx promptly sued for breach of contract, claiming that documents had been signed that stated that Sega would use its technology in the proposed 'Black Belt' concept for the new console (the first version of *Metropolis Street Racer* started development for the 'Black Belt' and Bizarre Creations even had a prototype of this hardware) The two projects, which had been kept top secret up until this point, were made known to the world thanks to 3dfx's lawsuit against both Sega and PowerVR2 manufacturer NEC. The former was reportedly furious about having its dirty washing aired so publicly and the legal impasse was later settled out of court for an undisclosed sum. Needless to say, it marked an inauspicious start for the life of the new super console

With the technology decided upon, the next step was to give the new project a name. With Sega's stock pitifully low, the company was well aware that any new machine would have to represent a new beginning and distance itself from the tainted public perception created by the poorly performing Saturn. To the Sega management, this meant one thing – completely remove the Sega name from the console and establish a new gaming 'brand' in the same way Sony had done with the successful PlayStation. According to reports, over five thousand different names were considered, with the positive-sounding 'Dreamcast' winning out. A combination of 'dream' and 'cast' – as in the way a magician would cast a spell – this pleasant moniker hinted at the expanded connectivity the system eventually brought to the home via its online services Thankfully for fanboys, Irimajiri's management team later, wisely, relented and permitted the Sega logo to be reinstated to the console's outer casing

Internally the new system was a marvel of cost cutting, off-the-shelf componentry – Sega had certainly learned valuable lessons from the failure of the Saturn. The Dreamcast's 32-bit predecessor was hampered by high production costs and the complex nature of the hardware made it difficult for programmers to get the most out of the system With Dreamcast, Sega made sure the console was cheap to manufacture by using parts more commonly associated with PCs. The motherboard was a masterpiece of clean, uncluttered design and compatibility, with Microsoft's Windows CE operating system meaning that development would be a potentially pain-free exercise (although it should be noted that in the long term, programmers favoured Sega's own development tools over Microsoft's). In order to keep costs down, the decision was made not to include a DVD drive as the technology was still quite expensive at the time. Instead, Sega used its own proprietary GD-ROM format, which could store a gigabyte of data Not including DVD compatibility later proved a costly mistake

If proof is needed to ascertain how serious Sega was about the new machine, you need only look at the amount of money involved in designing, creating and marketing the console Around $500 million was earmarked for the Dreamcast worldwide, with roughly half of that figure being spent on creating the hardware and software. The rest was splashed on promoting the machine all over the globe. Irimajiri, who found fame and fortune in the automotive industry with Honda, jokingly commented a few months before the Japanese release that the figures baffled him – car manufacturers would spend roughly the same amount on creating a new automobile, yet here was Sega throwing millions at the production of a diminutive box that sits under your TV Nevertheless, Sega's Japanese president was well aware that this was the amount of capital it took to get a new machine on the shelves and into the consciousness of the consumer The company knew that it would take something special to regain market share from the dominant Sony. "We have the strength of a beaten company," Sega's PR guru Yasushi Akimoto commented at the time But for all this bravado, the new hardware launch was undoubtedly a huge gamble. The poor performance of the Saturn had pushed Sega into the red, and even before the Dreamcast hit store shelves in Japan the distressed firm had posted a shocking 75 per cent drop in half-year profits. With such a massive amount of money being devoted to doing battle in the console arena once more, the top brass at Sega knew that this could potentially be the last throw of the dice

Nevertheless, as the console's Japanese launch grew ever closer there was a tangible sense of confidence in the Sega camp Consumer interest was high and retailers reported that strong pre-orders were expected However, this optimism was knocked slightly when NEC made the shock announcement that it was struggling with the manufacture of the PowerVR2 chipset. Issues were being encountered when the company mass produced the chip at the required 0 25 micron thickness (with one-in-three processors failing to meet production standards) and this invariably resulted in Sega

"SEGA PROVED HOW SERIOUS IT WAS ABOUT THE DREAMCAST... AS AROUND $500 MILLION WAS EARMARKED FOR THE DREAMCAST WORLDWIDE, WITH ROUGHLY HALF OF THAT FIGURE BEING SPENT ON CREATING THE HARDWARE AND SOFTWARE"

» Sega wasn't above taking cheap shots at its rivals, as this American advertisement proves.

COMMUNITY THE BEST DREAMCAST WEBSITES

PlanetDreamcast
www.planetdreamcast.com
Affiliated with the IGN network, this is a great resource for all things Dreamcast related. If you're digging around for some decent software reviews or just want to get yourself acquainted with the history of the console, this should be your first port of call.

DC News
http://dreamcast.dcemu.co.uk
Predictably, most modern Dreamcast sites are concerned with emulation seeing as many high-spec PCs can now comfortably pretend to be Sega's 128-bit machine. This site is an intriguing snapshot of what is possible when amateur coders really put some effort in.

Dreamcast-Scene
www.dreamcast-scene.com
Another site with a heavy "emu" bias (and we're not talking about that bird Rod Hull used to hang about with). However, there's lots of other interesting content on here, as well as a nice community dedicated to keeping the machine's memory alive.

Dreamcast Junkyard
http://the-dreamcast-junkyard.blogspot.com
A collection of (often-amusing) blog posts that deal with almost every aspect of the Dreamcast. Entertaining and passionate, it's also one of the few fan sites on the net that still gets regular updates and is well worth looking into.

having to halt Japanese pre-orders (which had reached around 80 thousand by this stage) and reduce the projected number of units available at launch from 500,000 to 150,000. To make matters worse, several key titles such as *Sega Rally Championship 2* and *Sonic Adventure* were also hit by development delays.

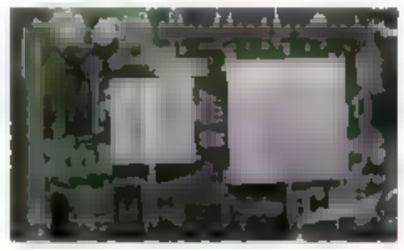
The machine was finally launched in Japan on 27 November 1998 and the 150,000 available units promptly sold out before the day was over. In an eerie precedent to the Saturn launch four years earlier, the only title really worth bothering with on day one was *Virtua Fighter 3: Team Battle*. Unperturbed by the PowerVR2 production fiasco, Sega confidently predicted that it would sell half a million units by March 1999. When this target was missed and the news started to filter through that key software titles were failing to sell in the numbers expected (Capcom's stunning *Power Stone* was one high-profile commercial disaster, prompting a public apology from the developer who, wrongfully, seemed to assume the end product wasn't up to scratch), those individuals inside the walls of Sega of Japan's boardroom started to worry. Prior to the Western launch, the price of the Japanese console was reduced from ¥29,000 (about £150) to ¥19,900 (about £100), effectively removing all profit from hardware sales. The reduction had the desired effect and units started to sell in larger numbers although this could have had something to do with the release of Namco's superlative *Soul Calibur*, which, when confirmed as coming to Sega's 128-bit console, caused a 17 per cent jump in the value of Sega's shares.

As the Dreamcast was struggling to maintain pace in its homeland, Sega's American and European divisions prepared to launch the console in their respective territories. The North American release occurred on 9 September 1999, with the European debut taking place just over a month later. The US launch was an astonishing success with Sega struggling to meet the initial demand for the product. Half a million Dreamcast consoles found their way into US homes in the first two weeks alone – something the machine had failed to do in several months in Japan. The company proudly boasted that it made $98 million on software and hardware sales thanks to the 9 September launch. By anyone's standards it was a successful introduction and ranks as Sega's most successful hardware launch in the territory. In Europe the figures made for equally encouraging reading, by Christmas 1999 half a million units had been sold meaning that Sega Europe was six months ahead of the schedule it had set itself.

» *Shenmue* was arguably the most high-profile Dreamcast release and proved to many that the machine was a true next-generation proposition

Given Sega's strong coin-op heritage, the Dreamcast, not surprisingly, saw many arcade conversions during its life span. Shortly before the Japanese launch, Sega announced that it would be replacing its popular Model 3 arcade hardware with a new standard called NAOMI (New Arcade Operation Machine Idea). NAOMI and Dreamcast were essentially the same systems, with the former possessing twice as much RAM and four times as much sound memory. This meant that home conversions were more often than not exact replicas of what was seen in the arcade, and for the first time since the days of the Neo-Geo AES the term 'arcade perfect' actually meant what it said. A slew of Sega-produced arcade ports arrived including *Crazy Taxi*, *Outrigger*, *18 Wheeler*, *F335 Challenge*, *Dynamite Deka 2* and *Virtua Tennis*. Superb support also came from many leading Japanese arcade companies, most notably former Saturn ally Capcom, which not only released some excellent NAOMI

KEEPING COOL
Due to the raw power contained within the Dreamcast, it was necessary to fit a cooling fan to keep the internal components from overheating. Sega even employed unique heat sinks to keep the main CPU and GPU chips from getting too toasty. This bizarre setup was rumoured to use liquid to carry heat from the chips to the fan using metal pipes via the principle of 'convection circulation'. However, before you excitedly go opening up your PAL machines in order to gaze upon this remarkable feat of technical engineering, it's worth noting that it was sadly only utilised in Japanese launch consoles, and we've only just discovered from an ex-member of Sega's PR that the presence of liquid inside the pipes was actually true. Manufacturing improvements meant that main chips generated less heat and therefore the internal fan proved to be more than enough to keep things running smoothly.



DREAMCAST

OTHER VERSIONS WHEN ONE MACHINE ISN'T ENOUGH

Divers 2000 CX-1
Shaped like Sonic's head, this all-in-one solution remains one of the most desirable pieces of Sega hardware. Bundled accessories included a keyboard, rumble pack and headset. It even had teleconference software and a remote for when you wanted to use it as a bog-standard TV.

Hello Kitty
Years before Nintendo cornered the female gamer market with the pink DS, Sega of Japan had been wooing young Japanese schoolgirls with this sickly sweet limited edition Dreamcast. Strictly limited to 2,000 units, many grown men hanker after this effeminate piece of hardware

R7
The R7 was originally manufactured as a network console in pachinko parlours in Japan. Predictably many units have made it out 'into the wild' and into the hands of Sega collectors. The sleek black exterior reminds us of the Mega Drive, which is certainly no bad thing

Treamcast
Not strictly an official hardware release, this Chinese modification was sold as a 'portable' solution for Dreamcast fans. Complete with a TFT screen and carry case, it offered incredible power on the move but didn't trouble the established handhelds of the era

» Small but perfectly formed – the Dreamcast VMU was a neat idea, but never really made the impact it should have

"THE THRILL OF PLAYING CRAZY TAXI IN THE ARCADE KNOWING FULL WELL THAT A PIXEL-PERFECT CONVERSION (AND NOT SOME CUT-DOWN PORT) WAS SET TO ARRIVE ON THE DREAMCAST IS AN EXPERIENCE GAMERS ARE UNLIKELY TO WITNESS AGAIN"

» These NAOMI-based shooters kept the console alive long after Sega had forgotten about it. Clockwise from top left: *Ikaruga*, *Border Down*, *Last Hope*, *Chaos Field*, *Radilgy*, *Trizeal*

tles (*Capcom Vs SNK*, *Marvel Vs Capcom 2* and *Project Justice* to name but three), but also seemed to release a new 2D fighter on an almost weekly basis, with titles like *Street Fighter III*, *DarkStalkers/Vampire Chronicle* and *Jojo's Bizarre Adventure* proving that Capcom was as serious about standing by the Dreamcast as it had been with the Saturn. Capcom offered another title for Sega's machine, a game that was arguably more important than any of its available fighters. *Resident Evil Code: Veronica* instantly caused a large amount of buzz for Sega's system, mainly down to the fact that until that time the series had been entirely Sony exclusive. The game was eventually ported to PlayStation 2 and even Nintendo's GameCube as *Code: Veronica X*, but many fans feel the Dreamcast original was far superior

Unfortunately, consolidating further third-party support wasn't going to be easy. Companies like EA had been burned by the failure of the Saturn and ignored the Dreamcast throughout its life, choosing instead to stick with the far more profitable PlayStation (it was believed at the time that EA was offered favourable publishing terms on the PlayStation 2 if it didn't support the Dreamcast). Others adopted a cautious 'wait and see' policy towards the machine, commenting that they would review their stance when solid sales figures came through. Sadly, as positive as the Western launches had been, Sega struggled to keep the momentum going. With Sony's PlayStation 2 looming menacingly on the horizon many gamers decided to stick with their current machine rather than upgrading to the Dreamcast, and as a result interest started to wane. Price cuts, like the one witnessed so early on in Japan, predictably followed in the US and Europe, but these failed to be a long-term solution to the problem.

Invariably, as sales began to diminish, more and more developers chose not to bring their products to the troubled console, and even those that had provided vital support began to lose interest. Namco – an essential partner and the company responsible for the system-defining *Soul Calibur* – dropped Dreamcast support almost as swiftly as it had taken it up. Therefore, throughout the life of the machine it fell to Sega to produce quality software, but while the company was undoubtedly adept at producing engaging co-op experiences it struggled to cater for a new audience of gamers that had been weaned on deeper, more feature-packed titles on the PlayStation. Sega's arcade ports were unquestionably arcade perfect, but in the eyes of many critics that was the problem – arcade machines are designed to entertain in short bursts and don't usually stand up to prolonged play within the home. Contemporary reviewers complained of lightweight coin-op ports and even the feature-rich world of *Shenmue* couldn't alter the often-erroneous perception that the Dreamcast was a machine packed with arcade titles that failed to keep your attention for more than a few hours.

Dreamcast's ace in the hole – online connectivity – could have arrested such a sorry slide, but Sega never really managed to exploit this facet to its fullest. The company was unforgivably slow in getting it to the consumer and while the actual service was up and running from day one and boasted internet access and email connectivity, it was let down by the software getting constantly delayed. When the promise of playing against "6 billion players" (a

» Pre-dating the Wii by a fair few years, the motion-sensitive maracas for *Samba De Amigo* brought joy to many a Sega fan. It's a shame the PAL release was so cr ppingly limited.

» The proposed Dreamcast Zip drive. Sadly it never made it on to the shelves.

rather lofty boast made by Sega Europe, which seemingly assumed that everyone on the face of the planet would buy a machine) finally came to fruition, it was found to be quite underwhelming due to the slow speed of the bundled modem

When the PlayStation 2 launched in March 2000 after a series of troublesome delays, it became obvious that the writing was on the wall for Sega's 128-bit challenger. Ironically, the PS2's initial line-up of software was arguably inferior to what was being released on the Dreamcast at the time, but Sony's brand was so strong it sold on the name alone. In the US, the Dreamcast was given a shot in the arm as Sega announced that it would grant a $150 rebate – basically the price of a Dreamcast system – to anyone who signed up to the SegaNet service for two years. Another price cut followed and these two manoeuvres resulted in an astonishing 156 per cent rise in hardware sales. However, it's always worth looking at the bigger picture when quoting numbers like these. The Dreamcast still only held around 15 per cent of the US gaming market, with Sony and Nintendo out in front with 50 per cent and 35 per cent respectively

Sega was in dire financial straits before the Dreamcast arrived, but its disappointing performance meant the company was in even more trouble. It clearly couldn't continue and although the announcement in 2001 that Sega would be discontinuing Dreamcast production and moving into third-party publishing came as a shock to hardcore fans, most industry experts had been predicting the move for months beforehand. Sega was quick to point out that games were still in development for the Dreamcast, but for all intents and purposes the Japanese firm had taken its eye off the struggling system and was looking very much to the future

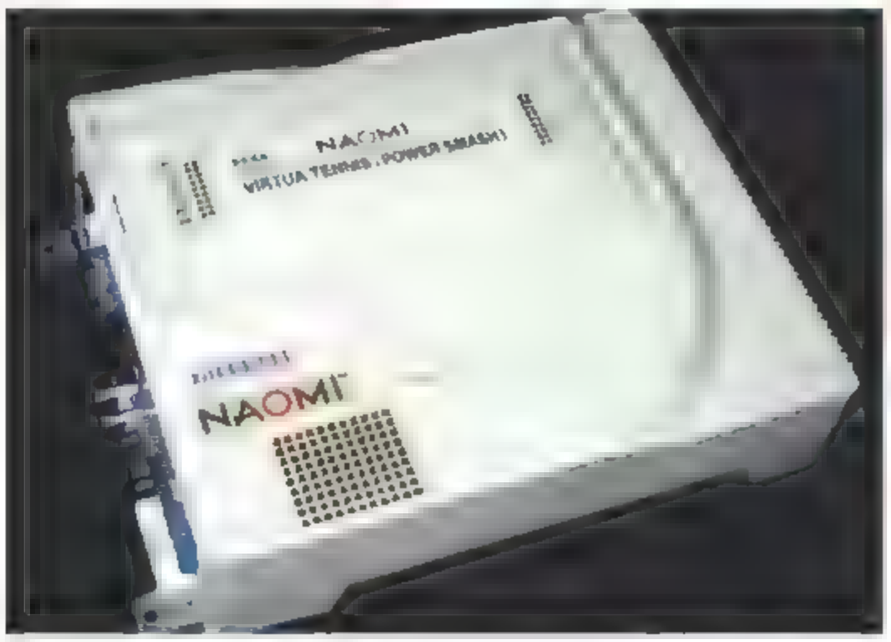
However, the Dreamcast's connection with NAOMI proved to be a crucial lifeline. The arcade system was incredibly popular and Japanese coin-op developers, finding their earnings diminishing as the industry began to shrink, gladly took up the low-cost solution that NAOMI provided. Over the next few years these companies would keep the memory of the Dreamcast alive with a series of shooting titles that, after successful arcade runs were granted small-scale domestic releases. Titles such as *Radilgy*, *Trizeal*, *Under Defeat* and *Tngger Heart Exelica* all found their way on to the system, and G.rev's *Border Down* was so highly sought-after that it recently received a welcome reprint. Homebrew shooter *Last Hope* was released in 2007 and is (at the time of writing, at least) the last Dreamcast game to receive moderate media attention

Pinpointing exactly why the Dreamcast failed is trickier than you might imagine. Was it lack of third-party support? Over reliance on arcade conversions? Poor support of online services that could have set it apart from its rivals? Lack of a DVD drive? The impending release of the PS2? Poor marketing in key territories? The most likely answer is that it was a combination of all these factors, but when dissecting the troubled history of the console it's easy to overlook just how potent a gaming platform it was. The thrill of playing *Crazy Taxi* in the arcade knowing full well that a pixel-perfect conversion (and not some cut-down port) was set to arrive on the Dreamcast is an experience gamers are unlikely to witness again. Rudimentary as it was, online play with a console was nothing short of revolutionary at the time, and Sega basically offered access to the internet for under £200 – something that PCs of that era were asking an awful lot more for. With titles of the calibre of *Rez*, *Jet Set Radio*, *Daytona USA*, *Dead Or Alive 2*, *House Of The Dead 2* and *Skies Of Arcadia*, the Dreamcast was unquestionably heaven for videogamers who appreciated the finer things in life. Sadly, out of those "6 billion" potential players that Sega spoke about, the message only seemed to get through to a lucky few

EVERYTHING BUT THE KITCHEN SINK

The range of peripherals available for the Dreamcast is nothing short of staggering. As well as the usual arcade stick controllers and dedicated 'fighting type' joypads there was also an updated version of the Saturn's Twin Stick controller (for mecha-fighter *Virtual On*), a steering wheel, rumble pack, keyboard, fishing rod, camera, microphone and motion sensitive maracas (for *Samba De Amigo*, naturally). Possibly the best-known addition to the Dreamcast stable was the Visual Memory Unit (VMU for short) which stored saved game data and acted like a small console when separated from the Dreamcast itself. Sega had audacious plans for this glorified memory card (as did Sony with its PocketStation), but battery life wasn't perhaps as good as it could have been and anyone who has owned a Dreamcast will be all too aware of the painfully annoying beeping tone a battery-less VMU makes whenever the console is switched on

» The unique – not to mention disturbing – *Seaman* made use of the Dreamcast microphone



» The NAOMI arcade hardware was essentially a Dreamcast with more memory

» People may have questioned the design of the Dreamcast, but it could have been much worse, as these prototypes attest

DREAMCAST

PERFECT TEN GAMES

There are far, far too many great Dreamcast games, so here's a quick role call of the other titles that just missed our list. *Street Fighter III: 3rd Strike*, *Sega Marine Fishing*, *Jet Set Radio*, *Border Down*, *Power Stone 2*, *Castle Of Shikigami II*, *Crazy Taxi* and *Cosmic Smash*. So many amazing games, so little space

01

SOUL CALIBUR

- **RELEASED:**
- **PUBLISHED BY:** NAMCO
- **CREATED BY:**
- **BY THE SAME DEVELOPER:** PAC-MAN

01 **While Street Fighter III: 3rd Strike** is easily the superior fighter, we've given the beat-'em-up slot to *Soul Calibur* because Namco went above and beyond the call of duty with its actual conversion. Unlike Capcom's *3rd Strike*, *Soul Calibur* offers all the amazing playability and gameplay of the arcade original but enhances it by delivering a truly staggering additional mode that increases the longevity no end. As well as delivering some truly spectacular visuals, *Soul Calibur* upped the ante on the Dreamcast by offering a whole host of console-exclusive extras including the fantastic Mission mode and more unlockables than you could imagine. Little wonder, then, that it went on to sell over 1 million copies

SAMBA DE AMIGO

- **RELEASED:** 2000
- **PUBLISHED BY:** SEGA
- **CREATED BY:** SONIC TEAM
- **BY THE SAME DEVELOPER:** NIGHTS INTO DREAMS

02 **The Dreamcast featured** an astonishing range of peripherals during its release, but none could match the sheer magnificence of *Samba De Amigo*. Essentially a port of the popular arcade game and coming with a set of maracas, *Samba De Amigo* is an excellent rhythm-action game that had players shaking the maracas in a frenzy, as they matched the on-screen prompts. With its gaudy visuals and brilliant tunes that ranged from Quincy Jones's *Soul Bossa Nova*, to a bizarre take on A-Ha's *Take On Me*, *Samba De Amigo* proved utterly essential, even if the original package saw little change from 100 notes. Fans may wish to seek out the Japanese-only add-on *Samba De Amigo Version 2000*

02

RESIDENT EVIL CODE: VERONICA

- **RELEASED:** 2000
- **PUBLISHED BY:** EIDOS
- **CREATED BY:** CAPCOM
- **BY THE SAME DEVELOPER:** RESIDENT EVIL

03 **Capcom's fourth Resident Evil** title caused quite a stir upon release, mainly because it was the first time the franchise didn't debut on a Sony console, but also because it was the first game in the series to use proper 3D backgrounds. Spread over two discs and focusing on the exploits of Claire and Chris Redfield, *Veronica* moves away from Racoon City and focuses on a small island owned by the Umbrella Corporation. Granted, its gameplay is almost identical to the original *Resident Evil*, but it's saved thanks to far more impactive cut-scenes and a shockingly good story line

IKARUGA

- **RELEASED:**
- **PUBLISHED BY:** ESP SOFTWARE
- **CREATED BY:** TREASURE
- **BY THE SAME DEVELOPER:** GUNSTAR HEROES

04 **There's a slew** of great shoot-'em-ups on the Dreamcast, but not one of them can touch the sheer elegance of *Ikaruga*. The first of many 'last ever' Dreamcast releases, *Ikaruga* expanded on the duality themes that Treasure explored with *Silhouette Mirage* by having your ship flip between two polarities. While you could absorb bullets that were the same colour as your ship, enemies succumbed quicker to opposing coloured fire, which presented a superb risk-and-reward system. Add in its complex chain system and Treasure proved that when it comes to high-quality shooters, it's pretty much untouchable

METROPOLIS STREET RACER

- **RELEASED:** 2000
- **PUBLISHED BY:** SEGA
- **CREATED BY:** BIZARRE CREATIONS
- **BY THE SAME DEVELOPER:** GEOMETRY WARS: RETRO EVOLVED

05 **We'll gladly sing** *MSR*'s praises because it's just such an innovative racing game. Part simulator, part arcade racer, *Metropolis Street Racer* was essentially the forefather to the now-popular *Project Gotham Racing*, and delivered a driving experience that few other games of the time could match. With its excellent handling, well-constructed tracks and inventive Kudos system, *MSR* was a welcome alternative to Sega's hardcore racers that were available on its system and proved that Dreamcast owners had little need for Sony's *Gran Turismo*

03

04

05

06

SHENMUE I & II

- **RELEASED:** 1999 2001
- **PUBLISHED BY:** SEGA
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** SPACE HARRIER

06 **Okay, so we're** cheating here, but you really can't talk about Yu Suzuki's highly acclaimed game without including its incredible sequel. Greatly revered and reviled in equal measures, the *Shenmue* franchise cost Sega millions to make while *Shenmue II* remains its most requested game. Huge in scope and with an incredibly complex narrative – which, annoyingly, has yet to be completed – the *Shenmue* franchise delivered an experience that no other game of the time was able to match. After all, here was a series that not only allowed you to visit an arcade and play many of Yu Suzuki's past hits, but was even able to make menial tasks like working enjoyable

07

SEAMAN

- **RELEASED:** 1999
- **PUBLISHED BY:** SEGA
- **CREATED BY:** VIVARIUM
- **BY THE SAME DEVELOPER:** NOMA

07 **Sega's *Seaman* isn't** really a game as such, but that doesn't mean that you should miss out on this incredibly clever piece of software. Narrated by Leonard Nimoy, *Seaman* requires you to raise the titular character from an egg to a fully grown adult, and sees you raising and coaxing the creature via Sega's microphone peripheral. Despite never receiving a UK release, we urge you to track down the US version and a boot disc so that you can experience this utterly bizarre creation for yourself. If you need further insight into *Seaman*'s strange world visit Lofarus's diary at **www.rlimukforum.com/index.php?showtopic=179577**

SKIES OF ARCADIA

- **RELEASED:** 2000
- **PUBLISHED BY:** SEGA
- **CREATED BY:** OVERWORKS
- **BY THE SAME DEVELOPER:** SHINOBI

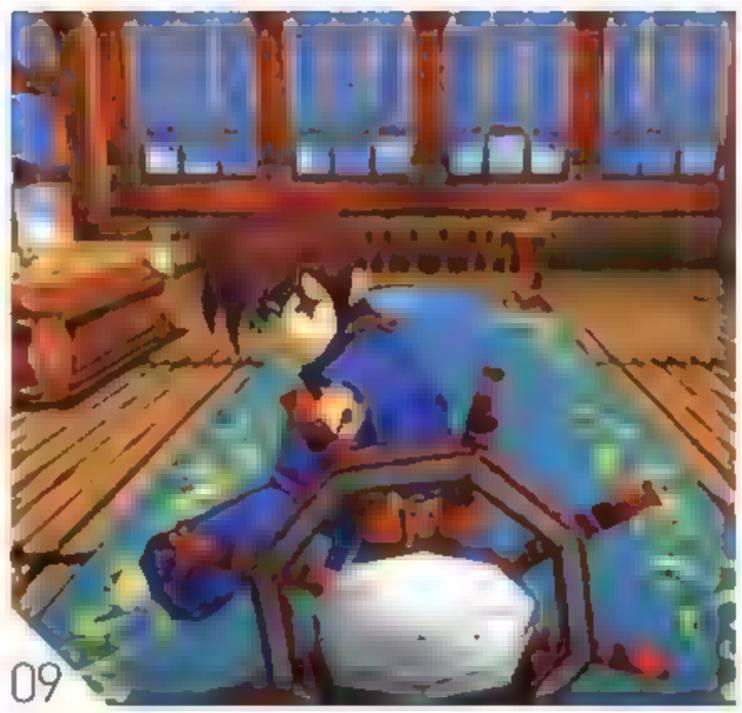
09 **We absolutely adore** *Skies Of Arcadia*. The score is sweeping and magnificent, the world you explore is incredibly huge and full of mystery. Add to this the fact that each and every character you meet is larger than life in a way that only the best role-playing games can manage and you have yourself a beautifully immersive title. Following the story of a young air pirate called Vyse, *Skies Of Arcadia* is a wondrous adventure that's set in a Jules Verne-inspired world where islands float in the sky and flying ships are the main form of travel. While *Skies Of Arcadia* follows the well-trodden path of many other games in the genre, it has been put together with so much passion that you can't help falling in love with it

PHANTASY STAR ONLINE

- **RELEASED:** [illegible]
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** SONIC TEAM
- **BY THE SAME DEVELOPER:** [illegible]

08 **Falling asleep at** your keyboard was a common experience in *Phantasy Star Online*. Not because it was boring, you understand, but because it was so damned addictive. Never mind that level grinding was a chore or that phone bills could run into three-digit numbers, Sonic Team had created a world that was so imaginative you couldn't stay away from it. Incredibly basic when compared with recent offerings like *World Of Warcraft*, it's easy to forget what an impact it made on its release and just how successfully Sonic Team had evolved the franchise from its RPG roots

08



09

REZ

- **RELEASED:** 2001
- **PUBLISHED BY:** SEGA
- **CREATED BY:** UNITED GAME ARTISTS
- **BY THE SAME DEVELOPER:** SEGA RALLY

10 **Okay, so the** frame rate is lower than its PS2 counterpart and the lack of built-in vibration hurts it somewhat, but there's no denying that *Rez* on the Dreamcast remains an utterly compelling experience. Arguably one of the greatest contenders for those many 'Are videogames art?' discussions, *Rez* pushes boundaries and mixes gameplay, sound and vision in a way that few other titles have been able to manage. Beautifully abstract and boasting the sort of creative gameplay that matches its truly astonishing aesthetics, *Rez* is just as much an experience as it is a game and is further testament to just how innovative and imaginative Sega once was. A truly stunning game that needs to be in every Dreamcast owner's collection

10

Year released: Pocket Color 1999 (UK)

Original price: £59.99

Buy it now for: £20+ (depending on model)

Associated magazines: No specific titles

Why the NeoGeo Pocket was great... Solidly built with a ridiculously large battery life, the NGPC could and should have posed a serious threat to Nintendo's handheld dominance. Go back to it today and you find a small but varied back catalogue with something for everyone. Highly recommended gaming on the move.

NEOGEO POCKET

ALTHOUGH NINTENDO HAS SEEMINGLY BEEN THE DOMINANT FORCE IN THE HANDHELD SECTOR, THERE WAS A RIVAL THAT HAD THE POTENTIAL TO SUCCEED WHERE OTHERS, LIKE THE ATARI LYNX AND SEGA GAME GEAR, HAD FAILED. THE NEO GEO POCKET COLOR WAS A GREAT PIECE OF KIT THAT OFFERED EXTENSIVE BATTERY LIFE, HIGH-QUALITY VISUALS AND REASONABLE SOFTWARE, YET IT FAILED TO TAKE THE WORLD BY STORM. WE TAKE AN IN-DEPTH LOOK AT THE COMPANY BEHIND THE HANDHELD MARVEL, THE SUBSEQUENT LAUNCHES OF THE MACHINE IN DIFFERENT TERRITORIES, AND THE COCK-UP THAT LED TO THE DOWNFALL OF A FANTASTIC HANDHELD

Shin Nihon Kikaku (SNK) first began on 22 July 1978 and was initially founded to develop software and hardware components for business clients, quickly turning to the world of arcade development. Its first arcade titles were *Ozma Wars* (1979), *Safari Rally* (1980), and *Vanguard* (1981). And it was around this time that SNK created SNK Corp of America founded in Sunnyvale, California. While SNK still developed coin-op titles it shifted its focus to console games and signed up as a third-party licensee for Nintendo in 1986. SNK released *Ikari Warriors* in 1986 for a variety of formats including the NES, but then decided to return to the arcade industry.

In 1989, SNK aimed to re-invent the arcades and manufactured interchangeable game cartridges. Christened the Multi Videogame System (MVS), this arcade cabinet could allow up to six separate games to be installed into one machine. This innovative invention proved vital in keeping the arcades alive, and it meant that SNK went on to release its own home console using the motherboard from the arcade system, which was flexible enough to adapt to home use.

The console was the Neo Geo Advanced Entertainment System (Neo Geo), and although it was the most powerful home videogame console, its high price tag and expensive games meant it was only ever purchased by the mega-rich. Even today, Neo Geo titles can fetch colossal sums of money, with rare titles selling for thousands of pounds. The release of the Neo Geo CD in 1994 saw the first batch of 25,000 rapidly sell out in Japan, but complaints of slow loading times meant sales tailed off and the American launch in 1995 was mostly ignored.

Despite starting to struggle financially, SNK decided to release a handheld to compete with Nintendo's Game Boy and would feature ports of its classic franchises.

Game Boy Color: The Rival

The Game Boy Color launched in 1998 in the UK, about a year before the arrival of the Neo Geo Pocket Color. Just like the original Game Boy destroyed the Game Gear and Atari Lynx, the latest Nintendo handheld drove the nail into the Neo Geo Pocket Color's coffin. The Game Boy Color was technically superior to its predecessor with the ability to display games in colour minus a backlit screen to keep battery consumption down. As the machine was backwards compatible, it meant any Game Boy game could be played on the handheld while at the same time adding a bit of colour to the visuals. Key titles such as a brand new *Tetris*, a re-release of *The Legend Of Zelda: Link's Awakening* with an extra dungeon, plus subsequent releases of *Pokémon* and a huge back catalogue of Game Boy games meant that, sadly, Nintendo had won the battle before it had begun.

Would you have the balls to go up against the Game Boy Color? SNK thought it could and it proved to be a costly mistake.

NEOGEO POCKET

One of the most desirable aspects of the Neo Geo Pocket were its lovely clamshell cases. It also helped that, for once, the UK art looked great.

SNK used all sorts of marketing tricks to ensure that the Neo Geo Pocket range was a success, sadly it couldn't shake Nintendo's firm grip

This is an example of SNK's more adult advertising approach in the UK, which seemed to have some success.

This rare white Neo Geo Pocket handheld (above) was released with fantastic packaging in Japan. Sadly, the packaging was replaced elsewhere.

The handheld impressed many at E3 and Tokyo Game Show, leading to plenty of positive press coverage

NEO GEO POCKET: THE LAUNCH

SNK's mono handheld, the Neo Geo Pocket (NGP) launched in Japan on 27 October 1998. Featuring a liquid crystal display screen that could produce eight shades of grey, a stereo headphone socket, over 20 hours battery life and internal battery for game saves meant it was technically better than the Game Boy. The handheld also included volume and contrast buttons as well as some basic PDA functions such as a clock, calendar and horoscope generator. Unlike the Game Boy, which was held vertically, the NGP was held horizontally and included a finger groove indentation for better grip. Like the Game Boy, cartridges would slot into the back of the unit, and the handheld featured two action buttons as well as Power and Options buttons.

The NGP's retail price was ¥7,800, with cartridge prices varying from ¥3,500-¥4,500. *Tsunagete Pon!* was part of the first wave of software to hit the market along with *The King Of Fighters R1*, *Dokodemo Mahjong*, *Neo-Geo Cup '98*, *Shogi No Tatsujin*, *Pocket Tennis* and *Melon-Chan's Growth Diary*. While it initially had some success, the lack of releases meant the public began to lose interest. SNK made a classic mistake, in its desire to beat the Game Boy, it failed to keep a close eye on the competition, and two months after launch, the Game Boy Color was released to universal acclaim.

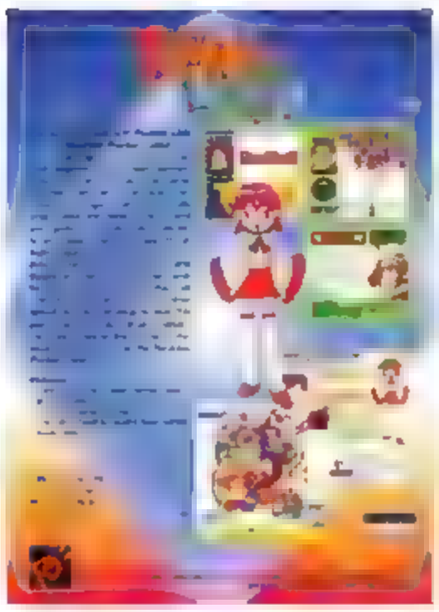
In December of 1998, two big games finally reached stores, *Samurai Spirits* and *Baseball Stars*. To go along with *Samurai Spirits*, *SNK* also released a special edition NGP box set that included a limited translucent NGP, copy of *Samurai Spirits*, and a strap for the system. Still struggling to gain a foothold on the market, SNK realised it needed to do something, so in 1999 the Neo Geo Pocket Color was unveiled.

NEO GEO POCKET COLOR: THE GLOBAL EFFECT

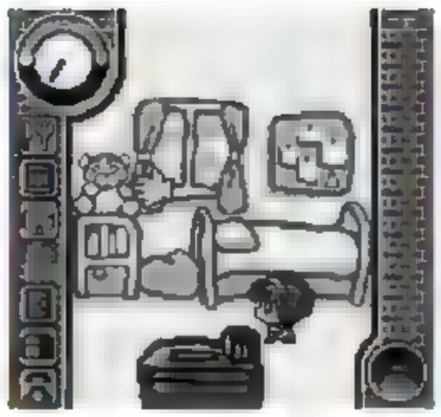
March 1999 saw the release of the machine in Japan, displaying an impressive reflective colour TFT screen and an incredible 40 hours of power just from two AA batteries. The new handheld kept the previous functions of the original, with the exception of the contrast dial, which was no longer required. The Dreamcast link-up function finally became a reality with the release of *The King Of Fighters R2*, which would upload stats to *The King Of Fighters 99*. The machine was available in Camo Blue, Carbon Black, Crystal White, Stone Blue, Platinum Blue, and Platinum Silver. Due to poor planning, *The King Of Fighters R2* was the only major title to purchase, giving the recently released WonderSwan and Game Boy Color consoles an immediate advantage.

Undeterred, SNK decided it was time to release its beauty into the West and plans were made for a May release through its website. This fell through, but it eventually emerged in June and *Fatal Fury: First Contact*, along with *Metal Slug: First Mission* were launch titles. August saw the portable arrive in the US and this time retailers were armed with an impressive array of software, including *The King Of*

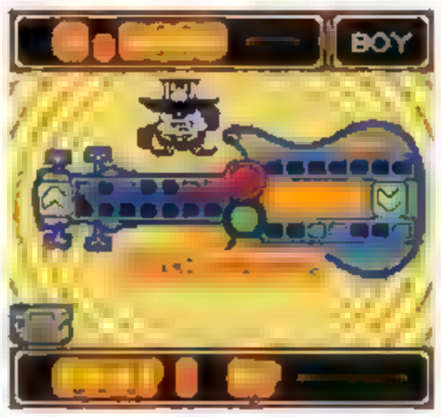
A poster promoting the NGPC and Dreamcast's link-up functions with *King Of Fighters R2* and *King Of Fighters '99*.



One of the adverts for *Puzzle Link* in America. It was re-named from Japanese title *Tsunagete Pon Color*



Melon Chan's Growth Diary was a Japanese-only title that appealed to the Tamagotchi crowd with its virtual life gameplay



Cool Cool Jam was a musical title that used the link-up feature, unlocking bonuses in Dreamcast game *Cool Cool Toon*

SNK's advertising approach in Japan was aggressive and placed it as superior to Nintendo's Game Boy.

Many Neo Geo Pocket conversions were brilliant. The *Metal Slug* titles perfectly captured all the thrills of the original games

King Of Fighters R1 was the main launch title for NGP although it was a while before other games were released.

Fighters R2, Puzzle Bobble Mini, Samurai Shodown, Baseball Stars Pocket, Pocket Tennis, Neo Cherry Master, Neo Dragon's Wild, Neo Mystery Bonus, Crush Roller Pocket and *Neo Geo Cup '98*.

Disappointingly, NGPC's clamshell casing was replaced with cardboard boxes in a bid to cut costs. This time SNK USA was guilty of poor management, with many stores lacking machines to sell for launch. Shop staff knew little about the handheld due to a lack of information because SNK focused mainly on promoting its new baby on the internet. Despite the hiccups, the machine sold well, with many stores selling out. Games such as *Dive Alert* were translated into English and SNK USA went on to publish titles on other systems. A small re-modelled colour handheld was released in Japan to drum up sales along with both versions of *SNK Vs Capcom Card Battle*, and *Densha De GO! 2*. Despite SNK's best efforts in the Japan, the handheld sold only 250,000 units prior to the UK launch and was deemed a failure.

October 1999 saw the machine launch in Europe and SNK was slowly learning from its many mistakes. The machine was marketed with lifestyle adverts in the UK media and retailers were far better informed about the machine. Games were released regularly (unlike in the US and Japan) and throughout its short life span, 39 titles made it to the UK. In a surprising move, all games were released in the clamshell packaging, instantly increasing their desirability.

Sales reached an impressive 100,000 in the UK, although the lack of marketing in other countries meant that it sold poorly elsewhere. Europe saw games like *Faselei*, *Last Blade* and a host of gambling and card titles that never made it to America. Despite games like *Sonic Pocket Adventure*, *Puzzle Bobble* and *Puyo Pop*, the software diversity wasn't enough to capture the public's interest. The handheld needed more third-party developers and although Capcom, Atlus, Acclaim and Sega helped, it wasn't enough to compete against Nintendo's unstoppable Game Boy.

In comparison to the Game Boy Color, the NGPC was a technical marvel. Its micro-switched thumb pad offered far greater precision than the traditional D-pad, and the design was solid compared to the Game Boy Color's cheap plastic. The NGPC screen not only offered superior colour visuals, its larger size and improved visibility meant that technically, it was miles ahead of its rival. By rights the machine should have gone on to have a fruitful life, but the mistakes of the past proved far too costly. SNK Japan was in control of SNK USA, which resulted in the botched NGPC launch, a neglected arcade market and poor marketing. As a result, the company went deeply into the red and lacked the financial backing to support its impressive (yet ultimately doomed) handheld.

Pachinko maker Aruze bought SNK in January but paid little attention to the videogame market, so SNK closed outside Japan in June 2000. The NGPC was officially withdrawn from the USA and Europe, having only been for sale in the latter for a paltry eight months. As a result, certain titles such as *Evolution*, *Gals Fighter* and *Pocket Reversi* that were meant to be crushed/recycled were accidentally released (hence their high prices today!). The biggest shame about the NGPC's failure is that an MP3 player was due to be released for the it and could have raised awareness for the NGPC. Again, SNK was miles ahead with this device because Nintendo only released its MP3 add-on a few years ago. Sadly, despite various buyouts, SNK never really recovered and the entire company was declared bankrupt in 2004.

END OF AN ERA

Although the NGPC had a short innings, it was a superb handheld with plenty of classic titles that are well worth tracking down. With hardware prices constantly plummeting and the wide availability of the software, boxed or otherwise, there hasn't been a better time to snap one up. So if you're craving a piece of handheld history that doesn't have Nintendo stamped on it, then allow us to recommend SNK's superb Neo Geo Pocket. You certainly won't regret it.

A *Samurai Shodown* edition pack was released in Japan including limited translucent white handheld, the game and special wrist strap.

Places Of Purchase

If you have read this article and fancy getting hold of one of these lovely handhelds, your best bet is to go down the import and second-hand market area. eBay, of course, is home to quite a few bargains, and import favourites Play Asia and Lik-Sang stock some titles, although, regrettably, a lot of titles are Japanese and/or cartridge only which may not be ideal for collectors.

If you just want to start your collection, some retailers such as GameStation still sell a basic package for around £50-£70. That includes the handheld along with six games, again unboxed. While the games can vary, usually they include *Pac-Man*, *Metal Slug*, *Turf Masters*, *King Of Fighters R2*, *Fatal Fury* and *Pocket Tennis*. For complete versions, particularly Europe Clamshell editions, eBay is the best place to look, although expect prices to vary dramatically depending on the title. Other popular resources include dedicated import sites such as **www.neo-geo.com** and **www.ntsc-uk.com**. A Neo Geo Pocket fetches around £10-£20 although it can only play the early black-and-white titles, while the colour edition can fetch anything from £20-£50 depending on the model and whether it comes with its original packaging. Due to handhelds being region free, it doesn't matter where you buy the machine or games from so feel free to look around in order to get the best bargains.

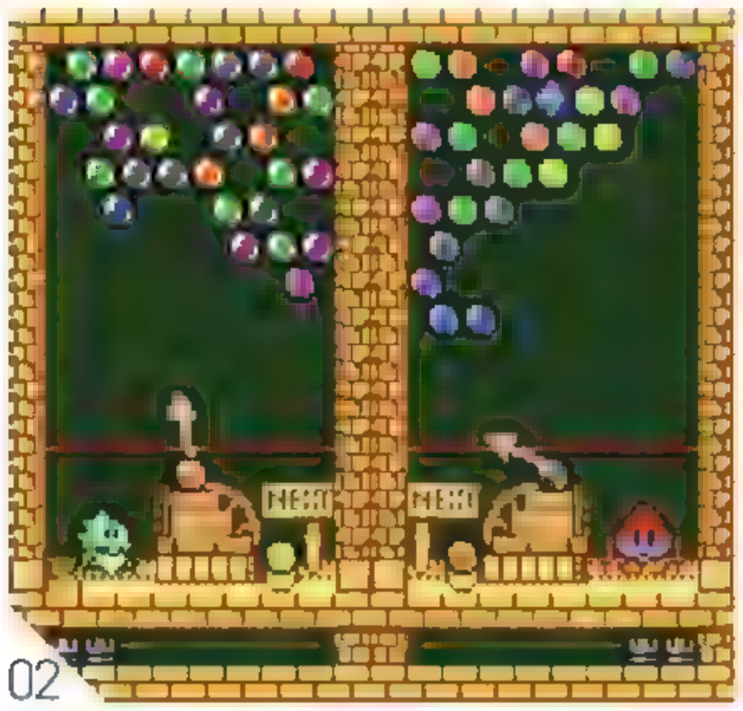
http://www.ebay.co.uk
http://www.gamestation.co.uk
http://www.videogameimports.com
http://www.play-asia.com
http://www.lik-sang.com

NEOGEO POCKET

PERFECT TEN GAMES

01

The Neo Geo Pocket and Pocket Color may not have boasted a stunning number of games, but that doesn't mean that they didn't have some cracking titles available for them



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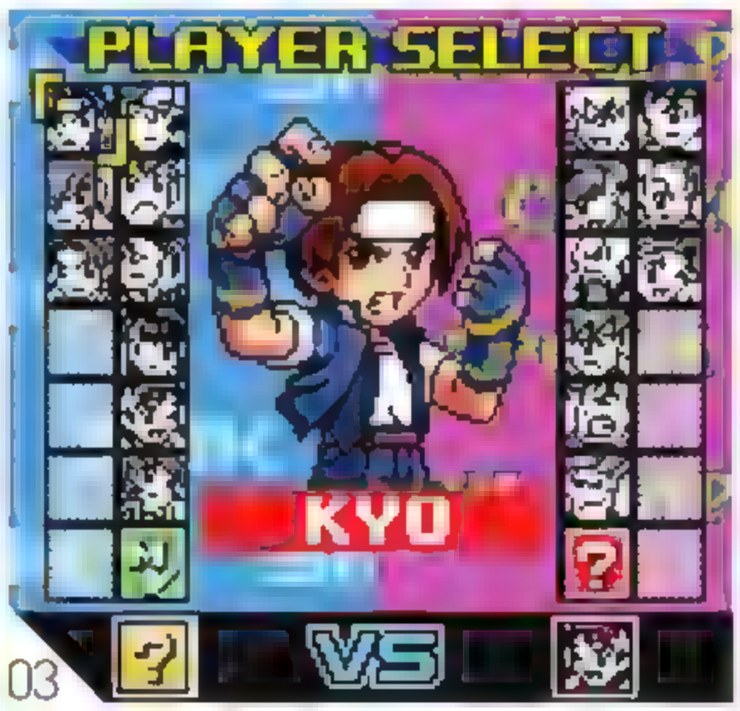

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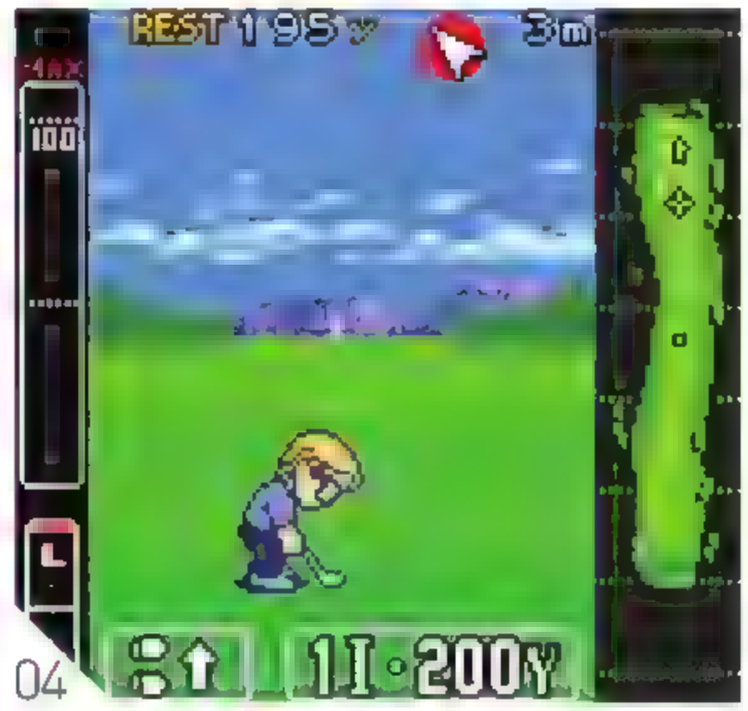

04

SNK VS CAPCOM: CARDFIGHTER'S CLASH

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** NEO TURF MASTERS, SNK VS CAPCOM, MAUS

01 A card game starring Capcom and SNK characters might not sound like a recipe for success, but it has proved to be one of the handheld's most enduring titles – hell, there's even a DS version on the way. For those unaware of its heritage, the *Cardfighter's* series is best described as a hybrid of the now-popular *Yu-Gi-Oh!* and *Pokémon* games that are available for Nintendo's current handheld range (it also came in SNK and Capcom editions). For us, it was the beautifully drawn images that prove to be the game's real trump card (ouch). It takes a while to get used to the dueling system, but once mastered you'll never put it down. Easily our favourite Pocket title.

PUZZLE BUBBLE MINI

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** TAITO CORP.
- **BY THE SAME DEVELOPER:** PUZZLE BOBBLE, RAINBOW ISLANDS

02 No portable console is complete without a classic puzzle game, and the Neo Geo Pocket is no exception. While the Neo version of *Puyo Pop* is extremely good and well worth owning, if we had to choose one puzzle title we'd go for the amazing *Puzzle Bobble Mini*, mainly because it has everything you could ask for in a good puzzler. The visuals are perfectly defined, the computer characters put up a fantastic challenge (especially on the later levels), and the gameplay is fiendishly good. Utterly compelling.

SNK VS CAPCOM: MATCH OF THE MILLENNIUM

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** SNK
- **BY THE SAME DEVELOPER:** NEO TURF MASTERS, THE LAST BLADE

03 There's a host of excellent little fighters available on SNK's diminutive handheld, but few can match the sheer diversity and greatness of the sublime *Match Of The Millennium*. There's a staggering number of options on offer, a huge roster of fighters to choose from, and the ability to link up to both of the original *Cardfighter's* games and Sega's Dreamcast. Add in three vastly different fighting styles, the ability to play one-on-one or use a tag-team system that mimics Capcom's *Vs* series and it's little wonder SNK had to use a 32MB cartridge in order to cram all the goodness in.

NEO TURF MASTERS

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** SUPER BASEBALL 2020, ACCELBOLT

04 *Neo Turf Masters* was an essential purchase for the Neo Geo AES (providing you could afford its hefty price tag) and this pocket translation is just as vital as its bigger brother. Essentially, it's a scaled-down version of the classic arcade game and is instantly accessible thanks to its elegant control system and wonderful presentation. Eight different golfers are on offer (each with their own distinctive attributes) and the three available courses are beautifully designed. Like many Pocket titles, everything has been given an extra cute look and the end result is an utterly charming game that's an essential purchase for SNK's handheld.

METAL SLUG 1ST MISSION

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** CYBER-LIP, IRRITATING MAZE

05 While *2nd Mission* is generally considered to be the better title, it's the original *Metal Slug* game that has managed to secure a special place in our hearts. Considering the sheer size of the original arcade games, it's amazing to think that so much of *Metal Slug*'s spirit was captured so perfectly. Like its arcade parents, the level design throughout *1st Mission* is flawless, it's also extremely tough in places, but is balanced so perfectly that you'll constantly return to it. Add in some fantastic animation, a wide variety of detailed locations, and some boisterous sound effects and you have yet another must-have title.

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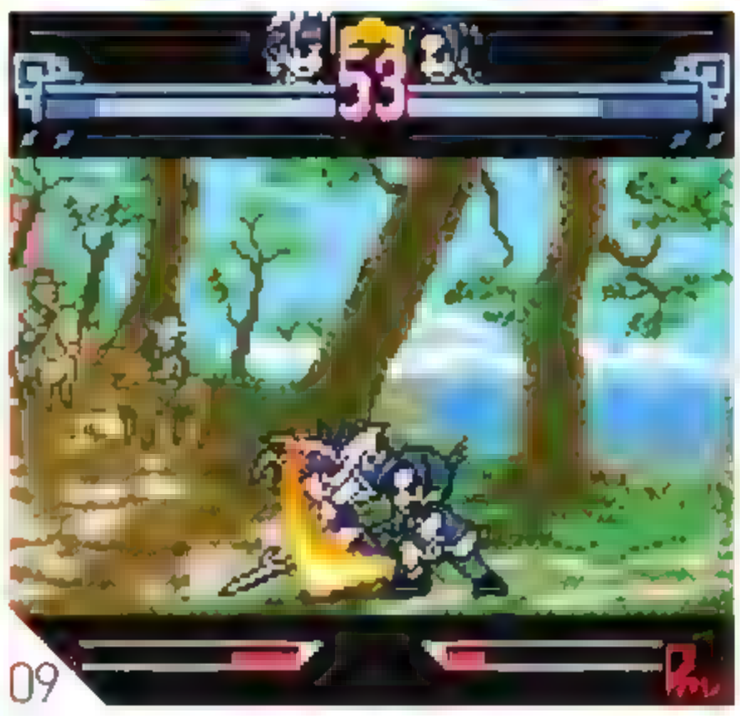


09

10

SONIC THE HEDGEHOG POCKET ADVENTURE

- **RELEASED:** 1997
- **PUBLISHED BY:** SNK
- **CREATED BY:** SEGA
- **BY THE SAME DEVELOPER:** SONIC THE HEDGEHOG, OUTRUN, PANZER DRAGOON SAGA

06 Sega had a strong relationship with SNK at one stage, but never for one moment did we expect its flagship mascot to appear on a rival machine. Nevertheless that's exactly what happened and Sonic and platform fans alike squealed with joy. From the moment "Sega" blared through the Neo's humble speakers to the sheer addictiveness that the fantastic multiplayer offered, *Sonic Pocket Adventure* was handheld perfection. Sure, it was easy to complete (although collecting all the puzzle pieces took time), but its wonderful visuals, level design and playability were the perfect payoff.

FASELEI!

- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** SACNOTH
- **BY THE SAME DEVELOPER:** SHADOW HEARTS, KOUDELKA

07 *Faselei!* is one of the Neo Geo Pocket's most coveted titles, mainly because SNK pulled out of the US before it was released. Surprisingly, this excellent little strategy title did make it to the UK in limited quantities, so the demand for *Faselei!* remains extremely high. While you can pick up a bog-standard cart for around a tenner, a mint condition specimen can go for as much as £70. Don't be fooled by the giant mechs, bland visuals and less-than-impressive sound, *Faselei!* is an incredibly absorbing strategy title and definitely worth its high price tag.

GANBARE NEO POKE-KUN

- **RELEASED:** [illegible]
- **PUBLISHED BY:** SNK
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** [illegible]

08 Don't be put off by the fact that this quirky-looking title appears to be nothing more than an upgraded Tamagotchi experience as it contains some of the most enjoyable experiences that the Neo Geo Pocket has ever offered. The idea is to keep your little Ganbare happy by manipulating his surroundings. The happier he is, the faster he'll create the 30 mini-games that you'll eventually get to savour. The mini-games are based on a variety of arcade hits that range from *Asteroids* to *King Of Fighters* and will be instantly recognisable to any who played the original games. One of the most charming titles

THE LAST BLADE: BEYOND THE DESTINY

- **RELEASED:** 2000
- **PUBLISHED BY:** SNK
- **CREATED BY:** IN HOUSE
- **BY THE SAME DEVELOPER:** SAMURAI SHODOWN, KING OF FIGHTERS SERIES, NAM 1975

09 We have always preferred *The Last Blade* franchise to the more popular *Samurai Shodown!* series and the NGP version is no different. While *Samurai Shodown! 2* is a solid little brawler in its own right, we just found that there's so much more depth to *Beyond The Destiny*. Like the fantastic *Match Of The Millennium*, there's a strong roster of characters, a variety of playing styles and a heck of a lot of depth. Add in amazing animation, the ability to collect special scrolls and two nifty mini-games and the end result is a game for those who prefer slashing blades to simple fisticuffs.

POCKET TENNIS COLOR

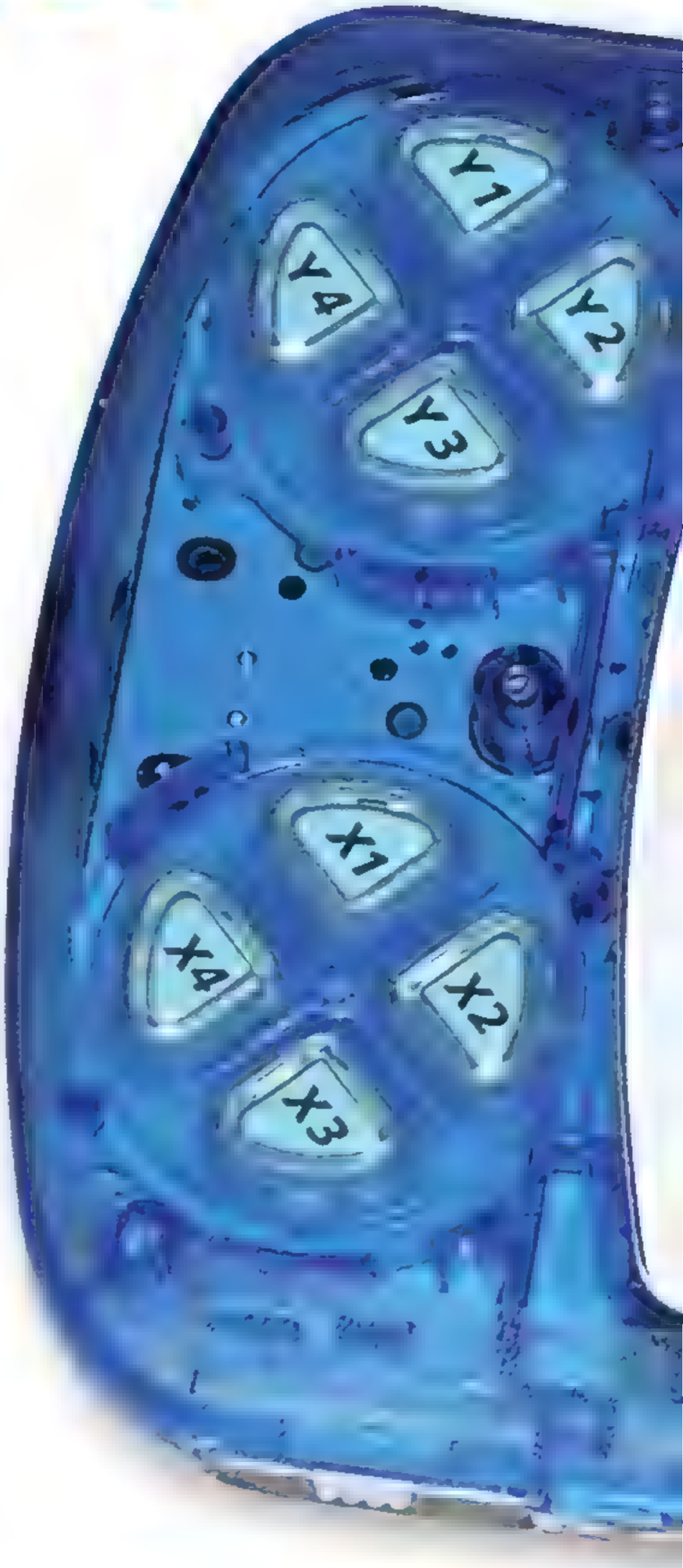
- **RELEASED:** 1999
- **PUBLISHED BY:** SNK
- **CREATED BY:** YUMEKOBO
- **BY THE SAME DEVELOPER:** BLAZING STAR

10 Don't be tricked into buying the original black-and-white version, this is the one you want. Like *Neo Turfmasters*, *Pocket Tennis* features cute character design, instantly accessible gameplay, and some increasingly tough opponents. Sadly, due to the cart capacity, the animation isn't quite as good as some of the later Pocket titles that are available but what's on offer are perfectly acceptable. And besides, it's the actual gameplay that's important and you'll find no quibbles from us. With four different arenas to choose from, the ability to play against a human opponent and some nice unlockable features, *Pocket Tennis Color* is another must have.

RETROINSPECTION

WONDERSWAN

WONDERSWAN IS A CLASSIC PIECE OF JAPANESE INGENUITY THAT SECURED A PROFITABLE NICHE IN A MARKETPLACE DOMINATED BY THE MIGHTY NINTENDO. KIM WILD TAKES A LOOK AT THE HANDHELD THAT FEW OUTSIDE JAPAN HAVE EVER PLAYED



Bandai was originally founded in 1950 by Naoharu Yamashina under the name of Bandai-ya. The Japanese pronunciation of the phrase is Bandai fueki, meaning 'eternally unchanging'. In those days, Bandai was responsible for manufacturing toy cars and plastic models. During the Seventies and Eighties, Bandai manufactured hundreds of LCD handheld games based on popular television programmes, branching out into the world of toy figures such as Digimon, Gundam and Astro Boy. It is also well known for its series of Tamagotchi virtual pet games. A merger between Bandai and Sega was rumoured but nothing came of it, with Bandai choosing to enter the videogame market alone.

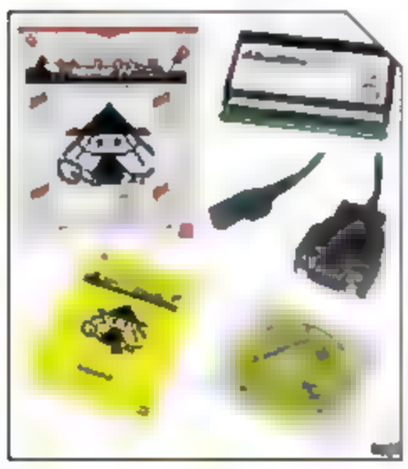
While at Nintendo, Gunpei Yokoi was famed for creating the original Game Boy and producing titles such as *Metroid* and *Kid Icarus*. When Gunpei Yokoi came up with the Virtual Boy, which spectacularly bombed, he left Nintendo to form his own company in 1996. It was while at his new firm, Koto, that he was approached by Bandai to create a new handheld to compete with his previous creation, the Game Boy Color. Sadly, in 1997 Gunpei Yokoi was involved in a car accident, which had a fatal outcome. While examining the damage of two motor vehicles at the side of the road with businessman Etsuo Kiso, another car driven by Iwao Tsushima slammed into them. Iwao Tsushima, his wife and Etsuo Kiso all survived with minor injuries, but Gunpei Yokoi did not, depriving the videogame industry of one of its leading lights.

On 4 March 1999, the WonderSwan launched in a variety of colours including Pearl White, Skeleton Green, Silver Metallic, Skeleton Red/Pink, Blue Metallic, Skeleton Blue, Skeleton Black, Camouflage, and Gold, with special two tone models Frozen Mint, Sherbet Melon and Soda Blue. These colours were chosen as a result of an online poll at Bandai's website, with the metallic models and Pearl White discontinued on 22 July to make room for the special tone models. Interestingly, the Skeleton Pink colour wasn't popular among the Japanese, often selling at a discounted price to shift stock, proving that pink isn't necessarily the answer to attracting more gamers.

The WonderSwan itself is a nice sized system, proving fairly portable with a reasonable button layout that makes it comfortable to hold. For the first time since the Atari Lynx, the handheld features two sets of controls for horizontal and vertical play, which means that games like *Magical Drop* can be played in portrait mode as intended. Despite its mono display, graphics are clear and sharp (superior to the Game Boy) although it does suffer from some blurring during lots of

The Wonder Of The Witch

WonderWitch (¥11,800) was an amateur programming kit released for the handheld for those who knew C to create their own games. The package included a cartridge for storing games, a CD of applications for the PC and a cable for connecting the WonderSwan and PC together. To encourage development, a competition was hosted offering publication for the winner and prize money for runners-up. The winner of the 2001 competition was *Judgement Silversword*, the prize being a commercial boxed release of the game. A sequel was uploaded to the author's website **http://members2.jcom.home.ne.jp/jss2/recycle.htm** but is only compatible with the WonderWitch software and doesn't work with emulators. In 2002 RPG game *Dicing Knight* won the competition and went on to receive commercial publication. The last ever competition was in 2003.



THE JAPANESE PRONUNCIATION OF THE PHRASE, BANDAI-YA, IS BANDAI FUEKI, MEANING 'ETERNALLY UNCHANGING'

RETROINSPECTION: WONDERSWAN

Year released: 1999

Original price: ¥4,800

Buy it now for: £10+ dependent on mode

Associated magazines: None

Why the WonderSwan was great... Its large battery life, stylish design and wide range of software from the likes of Data East, Squaresoft, Capcom and Konami mean that there are plenty of hidden gems to uncover

RETROINSPECT ON

WONDERSWAN

Doko Demo Hamster 3, a charming pet simulator. The cartridges fit into the back of the handheld and have a stylish case

This flash cart proved that piracy was also a threat to the console, although they could also run homebrew software

Blue Wing Blitz, a beautiful strategy game from Square that was full of Japanese text

Tare Panda Gunpey set, which included the game and a themed console in a presentation box.

The original mono WonderSwan is larger than the following Color and Crystal models

movement. Sound is controlled with one button and has just three settings, a contrast wheel for the screen display and a power button. Using one AA battery, which sticks out of the enclosed casing, over 40 hours of play can be enjoyed, the longest of any handheld machine to date. An expansion port is included for use with other devices.

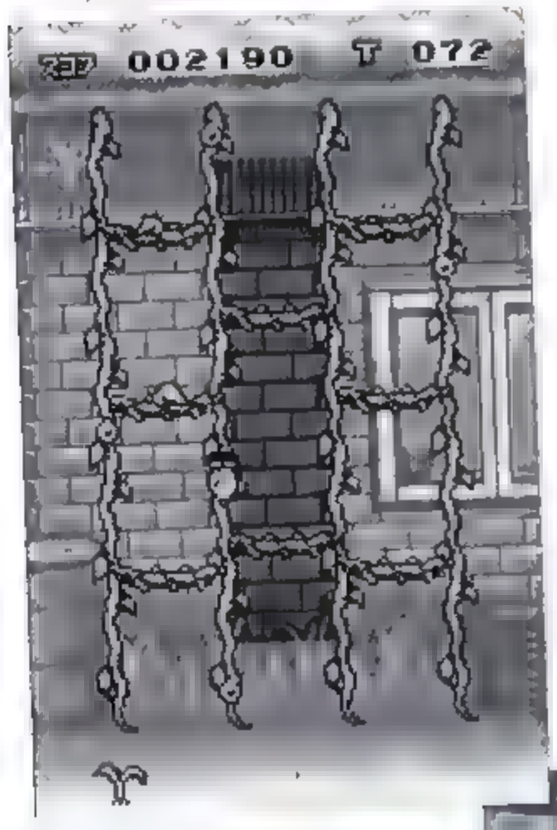
The system itself has its downsides: the control system isn't ideal for left-handers, the lack of a headphone jack means an adaptor must be purchased to experience decent sound quality and the AC port is noticeably missing, meaning it is a battery-only machine. It's also physically impossible to play a two-player link-up game with the headphones in place, as there is only sufficient space for one lead. Due to its low price, the casing is like a cheap plastic, although later releases did improve on this area. The weirdest aspect of the WonderSwan and all its models is that it doesn't do anything when you turn it on without a game inside, which gave the impression that the machine was broken. Sometimes the pins of WonderSwan games have to be cleaned with an alcohol-based solution as they are prone to slipping out of the console.

Facing steep competition from Nintendo, the original WonderSwan model sold 1.55 million units, an impressive figure given it was only sold in Japan and some import stores. Weekly sales figures from Magicbox at the time stated that the WonderSwan was second to the Game Boy Color, with the Neo Geo Pocket/Color and earlier Game Boy iterations lagging behind. On the game's launch, *Densha De Go* sold over two hundred thousand copies in one week and made it one of the bestselling titles in Japan at the time. *Makaimura* (known as *Ghosts 'N Goblins* in the West) and *Detective Conan* games were also popular, selling out upon their launch.

IN 2000, BANDAI SIGNED AN AGREEMENT WITH MATTEL TO BRING THE HANDHELD TO NORTH AMERICA, BUT THE DOMINANCE OF NINTENDO PROMPTED A CHANGE OF HEART

A WORLD OF COLOUR

In 2000, Bandai signed an agreement with Mattel to bring the handheld to North America, but the dominance of Nintendo prompted a change of heart. Later that year, the WonderSwan Color was announced after Nintendo Spaceworld, promising a 2.9-inch screen that could use up to 241 colours, implementing backwards-compatibility with all WonderSwan releases working on the handheld. The recent unveiling of the Game Boy Advance, however, meant



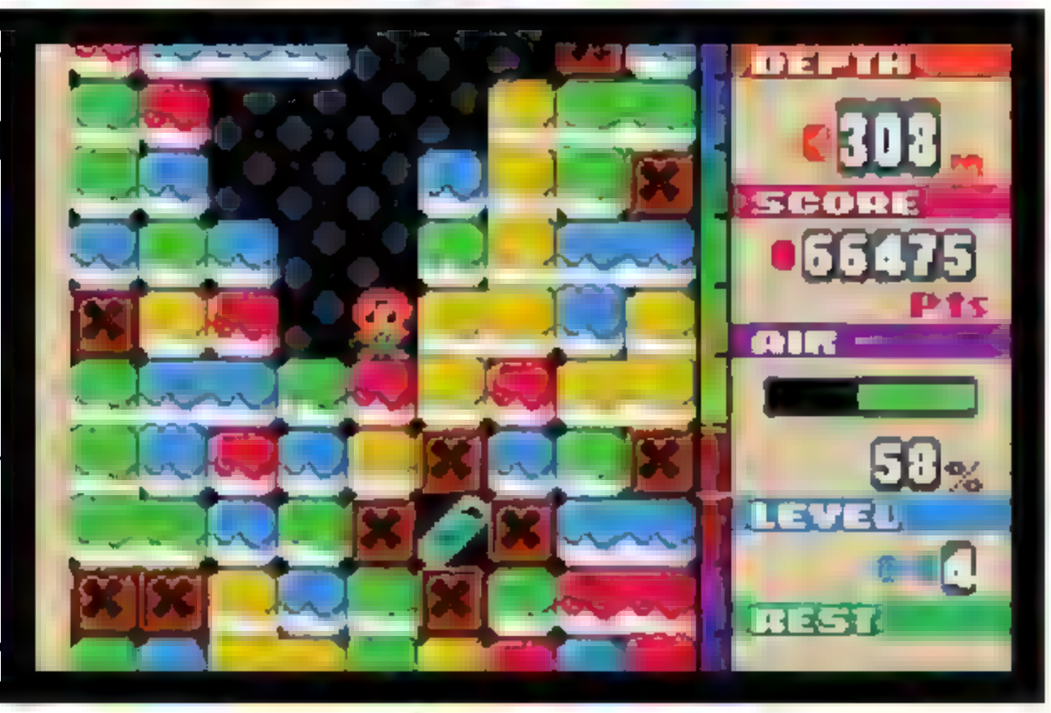
Taneomaku Tom direct water droplets to the seed. The boxed version also includes a hardback picture book

The lack of a headphone socket means that an adapter has to be purchased.

Although a key feature, the WonderSwan and PS2 link-up was barely used.

Riviera appeared on GBA, but the game originally appeared on WonderSwan entirely in Japanese

Even *Golden Axe* received an impressive conversion, although it was fair to say that the controls could be a bit cumbersome



Well known franchises like *Mr Driller* made the WonderSwan very appealing

It had a tough fight to compete from the outset. For a time it was rumoured that black-and-white games played in a colour model would be updated visually like the Game Boy Color, but this never occurred, with any mono games displayed as originally intended. Interestingly, at a trade show, Bandai showcased the WonderSwan's link-up mode with the PlayStation 2 (the WonderWave), although it was never made clear as to what this would involve or what titles would support it. Net access through a mobile phone network was also possible like its predecessor. Bandai's plan to sell at a much cheaper price point than the impending Game Boy Advance (¥6,800 to the GBA's ¥9,800) was aimed to attract as many new gamers as possible and give the machine a headstart. Promises of remakes of Square's *Final Fantasy* titles were also very enticing to an RPG-mad nation.

Launched on 30 December 2000, the machine proved popular and Bandai managed to take eight per cent of the market share in Japan due to its cheap price tag. Machines were available in Crystal Glass Black, Crystal Glass Blue, Crystal Glass Orange, Pearl Blue and Pearl Pink. Designed exactly the same as its predecessor but with a colour screen, display suffers from the same visibility problems as the Game Boy Color in bad lighting. Buttons are re-labeled for ease of use while battery life shrinks to 20 hours on one AA.

The Bandai WonderSwan Crystal was released on 7 December 2002 and updated the model by using a TFT screen instead of FSTN for a much brighter display, removing some of the motion-blurring present in previous versions. Colours launched were Wine Red, Blue Violet, Crystal Black, and Crystal Blue. Its casing was also made smaller out of more durable materials and refined with revamped buttons. The power button is now a slide switch, preventing accidental knocks to the machine from turning it on or off. Battery life was about 15 hours, which was still quite impressive, although not as impressive as the original's mammoth 40 hours. Unlike the WonderSwan Color, which was a new console in its own right, the Crystal is merely a redesign and doesn't have any machine-specific titles. The machine's brief advantage was soon demolished with the arrival of the Game Boy Advance, and with Squaresoft joining forces with Nintendo again, sales of WonderSwan machines dramatically declined. In 2003, Bandai announced that it would cease producing game hardware because of less-than-impressive demand. A backlit machine was rumoured but never came to fruition.

Wonderborg - a remote-controlled robot with the use of a WonderSwan handheld

COLLECTOR'S CORNER

Although the WonderSwan wasn't an outstanding success sales-wise in comparison to the Game Boy, some of gaming's most popular franchises helped its prospects. Bandai did a terrific job of releasing its own software, coming up with countless *Digimon*, *Gundam*, *Inyusha* and *One Piece* titles that were exclusive to the WonderSwan. Sammy released the successful *Guilty Gear Petite 1* and *2*, Taito came up with conversions of *Space Invaders*, *Puzzle Bobble* and *Rainbow Islands*, Capcom brought out two notable *Rockman* (*Mega Man*) titles, while Namco released the excellent *Kaze no Klonoa Moonlight Museum*. Squaresoft worked wonders with the machine, remaking *Final Fantasy I*, *II* and *IV* with better graphics and added abilities, with even more RPGs released including *Romancing Saga*, *Front Mission* (complete with English menus for import fans) and exclusives *Blue Wing Blitz* and *X Card*. Sadly, development on *Final Fantasy III* began but was never finished. Although big names were contributing to the WonderSwan's early success, not enough supported it, preferring instead to focus on Nintendo's brood.

Judgement Silversword, an excellent 2D shooter (see WonderWitch boxout) is incredibly rare due to a small print run of 500, regularly fetching £70-100 on eBay. Konami's *BeatMania* isn't especially rare, but the inclusion of a mini-turntable as a controller makes it highly sought after. Some games like *Tane wo Maku Ton* came with limited edition storybooks, increasing their desirability.

What makes the WonderSwan unique are the innovative accessories available, manufactured by Bandai and distributed by Sammy. Although there were the usual external lights, headphone adaptors, link cables and rechargeable batteries, you could also get a Digimon Connector for communication between certain games and the WonderCom, a plastic device that fits over the directional pads for more accurate play. Handy Sonar came out in 1999 as an add-on for the WonderSwan to allow fishermen to see underwater. The WonderGate turned the handheld into an internet device by connecting to a mobile phone. It would allow basic web access, provide an email program and enable the user to download basic mini-games from dedicated websites, with *SD Gundam: Episode 1* being the first game to use the service.

One of the most impressive add-ons is the WonderBorg, a programmable robot. Shaped like an insect, the WonderSwan handheld acts as the remote control by using the dedicated IR port and cartridges provided with the Wonderborg. The cartridges are in English (manuals are part Japanese) so programming the robot is for those who wish to import.

Special edition packs were also sold, which usually consisted of a game, a console with a themed appearance and a presentation box. Popular boxsets included *Final Fantasy* (all white with phrases written on the handheld), *Tarepan Gunpey* (black-and-white panda theme), *Chocobo Mysterious Dungeon* (yellow and orange) and *Gundam* (predominantly green).

To this day, Bandai remains a successful company, still manufacturing toys for franchises like Power Rangers and Hello Kitty while also creating many titles for the videogame market, such as *Tamagotchi Corner Shop*. It is inconceivable that Bandai will ever re-enter the world of console hardware, but what it managed with the WonderSwan was impressive given the competition. The low price even today makes it more than worthy of consideration.

Judgement Silversword, a terrific 2D shooter that commands prices in excess of £70

Gunpey Lives On

The death of Gunpei Yokoi in 1997 meant that he sadly never got to see the final hardware release of his creation. In commemoration of the inventor, the launch game *Gunpey* was named after him. *Gunpey* is an addictive puzzle game where tiles are connected from one side of the board to the other, making these disappear before they get pushed to the top of the screen. The concept would be re-used in *Tarepan Gunpey*, exactly the same game but featuring pandas. A sequel appeared in the form of *Gunpey Ex*, completely in colour and with different themes. Tetsuya Mizuguchi (mastermind behind *Lumines*, *Space Channel 5*, *Sega Rally Championship*) later remade the game for Nintendo DS and PSP. The former version received admirable reviews for adding unlockable content, themed backgrounds and plentiful music. A little-known Sony PlayStation version also exists on import.

Acknowledgements to planetwonderswan for some images

PERFECT TEN GAMES

Eagerly hankering after your own WonderSwan? Well, here are ten titles so good they should find their way into everyone's collection

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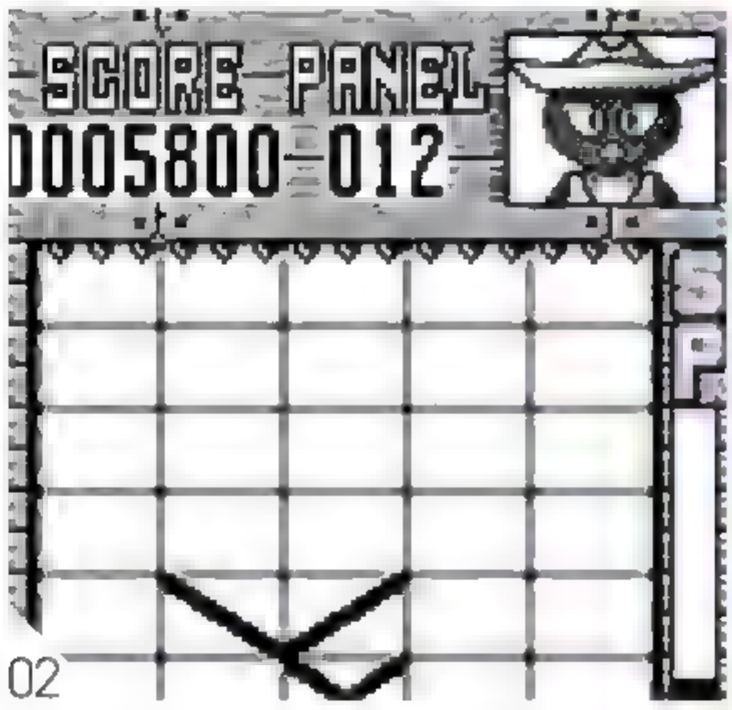

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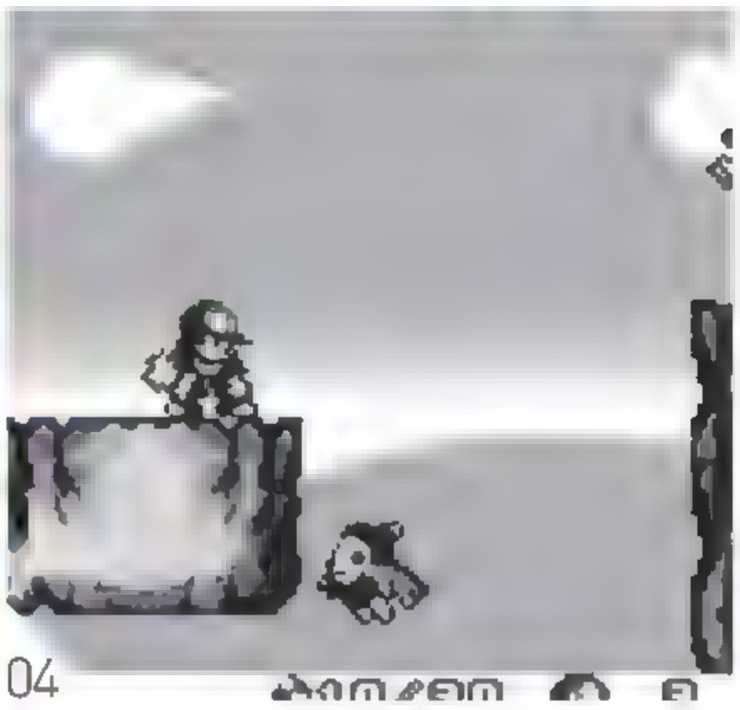
04

JUDGEMENT SILVERSWORD

- **RELEASED:** 2004 (CREATED [illegible])
- **PUBLISHED BY:** [illegible]
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** N/A

01 Yes, we know we've already mentioned this in great detail throughout the main WonderSwan article, but it's such a fantastic videogame that it deserves a place within this section. *Judgement Silversword* is a two-dimensional vertica shoot- em-up set in outer space w th your ship equ pped with two weapons and a defence shield. W th a gradua ly increasing difficulty leve:, plenty of action and lots of high-scoring opportun ties, it s a great game for any two-dimensional shooter fans. The fact that the game is in English is an added bonus Its rarity means that unless you re prepared to pay the steep asking price, you'll be playing it on emulator in the meantime

GUNPEY

- **RELEASED:** [illegible]
- **PUBLISHED BY:** BANDA
- **CREATED BY:** [illegible]
- **BY THE SAME DEVELOPER:** MONSTER PARTY

02 Although the sequel is in full colour and is technically superior, we're plumping for the original game as it came first and features a Wild West theme that helps to give everything that little bit more character and personality. *Gunpey* s a puzzle title n which you must move a series of lines up or down the screen to create a ful line with combos of pieces achieving higher scores Like many decent puzzlers it s extremely s mple to get the hang of and has plenty of modes for replay value Oh and it's in English As an orig na boxed copy can be acquired quite cheaply (£5-£10 it s an essential game for your collection And it s also ava lable on both the N ntendo DS and Sony PSP

MR DRILLER

- **RELEASED:** [illegible]
- **PUBLISHED BY** BANDA
- **CREATED BY** NAMCO
- **BY THE SAME DEVELOPER:** [illegible] PAC-MAN

03 Many gamers will have already encountered *Mr Driller*, it having been ported to many consoles over the years, but those who haven't are in for a real treat. Mr Driller has to prevent the world from being overrun by colourful blocks and does so by er drilling his way down through them Capsules of air must be collected in order to keep him a ve and while ploughing through blocks, you have to make sure fa ing debris doesn t crush you It s not the most comprehensive version in the series (only 500m, 1,000m and 2,000m levels are included) However if you haven't already experienced the joys of *Mr Driller* it remains an absolutely essential purchase

KLONOA: MOONLIGHT MUSEUM

- **RELEASED:** [illegible]
- **PUBLISHED BY** BANDAI
- **CREATED BY** NAMCO
- **BY THE SAME DEVELOPER:** TEKKEN

04 Although this game was later remade for Game Boy Advance, *Moonlight Museum* is still worth seeking out for platform fans. Each level involves Klonoa grabbing enemies and using them to vault while having to collect a number of gems to open the end of level doorway As the game progresses puzzle elements kick in, where you have to locate keys n order to progress The game makes clever use of the WonderSwan hardware as the perspective switches from vertical to horizontal for certain levels Like many *Klonoa* titles it s fairly easy but has superb replay value and is cute as a button

RHYME RIDER KERORICAN

- **RELEASED:** [illegible]
- **PUBLISHED BY:** BANDA
- **CREATED BY:** NANA ON SHA
- **BY THE SAME DEVELOPER:** PARAPPA THE RAPPER

05 While boasting an odd name, *Rhyme Rider Kerorican* is actually a great rhythm-action title that deserves your full attention. It has a unique visual style ful of vibrant colours with the game world featuring a host of strange creatures that are jumped over by pressing the correct button(s) in time to the beat. With only four levels, it's a bit on the short side, but like many Bemani titles, the addictive gameplay keeps you coming back for more. The in-game instructions are Japanese but the boxed edition comes with a set of cards showing a picture of a creature along with the correct button combinations, making it easy to know what to do

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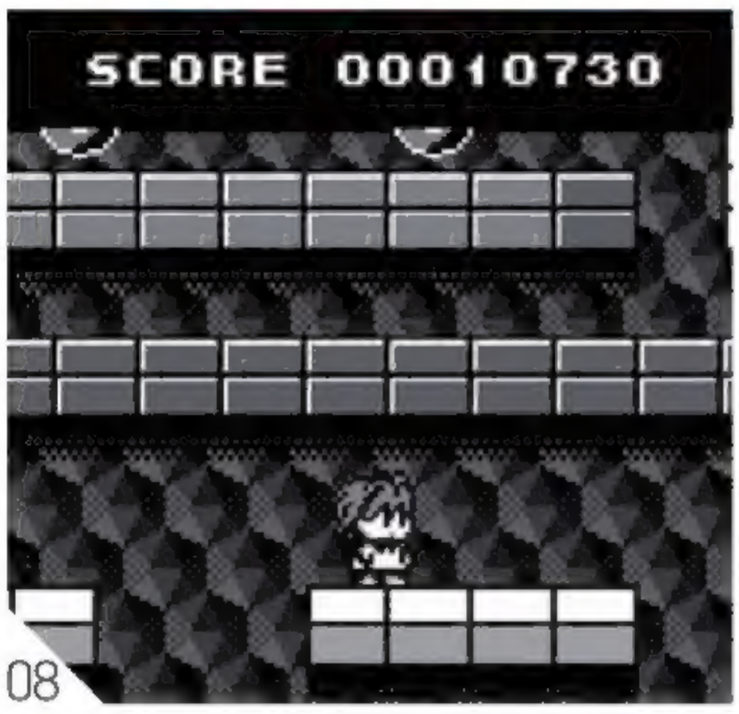

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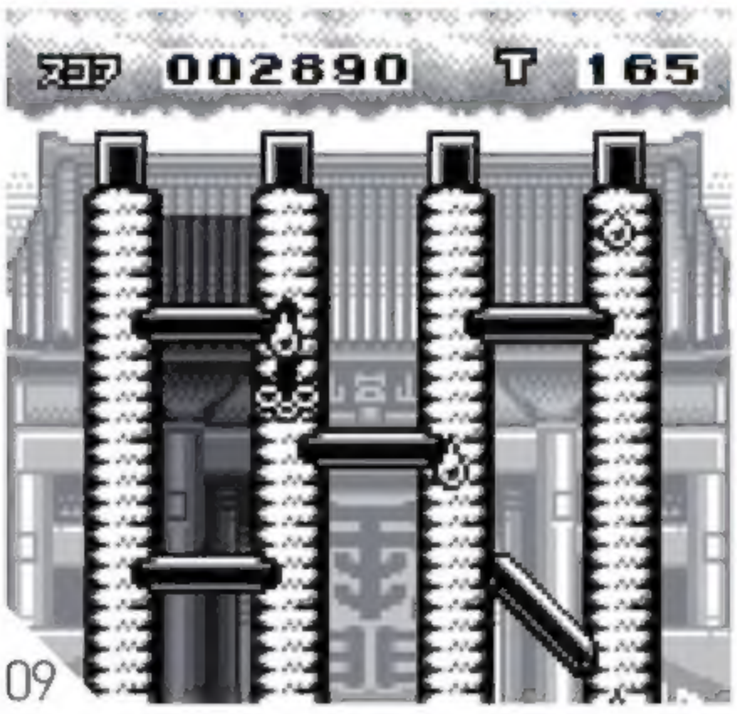

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ONE PIECE: GRAND BATTLE SWAN COLOSSEUM

- **RELEASED:** 2002
- **PUBLISHED BY:** BANDAI
- **CREATED BY:** DIMPS
- **BY THE SAME DEVELOPER:** STREET FIGHTER IV

06 This franchise is only just beginning to filter through to our fair shores, but in Japan, *One Piece* is a hugely popular anime series that has seen many videogame tributes on a variety of different systems. *Swan Colosseum* is one of the better games available for the WonderSwan and is a two-dimensional fighting game reminiscent of *Guilty Gear*. Aside from being fairly easy to start with, the inventive range of moves for each character gives the game depth. One of the best fighting titles on the system so adventurers and owners of the machine should rightly lap it up.

GANSO JAJAMURA KUN

- **RELEASED:** 1999
- **PUBLISHED BY:** BANDAI
- **CREATED BY:** JALECO
- **BY THE SAME DEVELOPER:** P-47: THE FREEDOM FIGHTER

07 An arcade classic from Jaleco, this videogame is easy to play and difficult to put down. As a ninja, your aim is to defeat the enemies on each platform within a specific time limit, moving up the screen by jumping under specific blocks to break them while being careful not to come into contact with the on-screen foes. Upon defeat, the enemies' essences can be collected for extra points. Featuring penguins, frogs and one-eyed umbrellas, the enemies are typically odd-ball yet all the better for it. It's a game that's becoming increasingly difficult to find but thankfully doesn't prove too expensive to buy. This means everyone can enjoy it.

RAINBOW ISLANDS PUTTY'S PARTY

- **RELEASED:** 2000
- **PUBLISHED BY:** BANDAI
- **CREATED BY:** TAITO
- **BY THE SAME DEVELOPER:** BUBBLE BOBBLE, SPACE INVADERS, RAINBOW ISLANDS

08 A unique game in the long-running franchise, *Rainbow Islands* instead features a female character called Putty as the main star (along with a pixie-like creature called Naughty) rather than Bub or Bob (although they do crop up in the story line as Bubby and Bobby). Putty has the added ability of jumping really high along with throwing rainbows as a weapon or staircase. Although black and white, the formula is as playable as ever and remains the same: make your way to the top of the screen using the power of the rainbow before moving on to the next level. Addictive stuff.

D'S GARAGE TANEOMAKU TORI

- **RELEASED:** 1999
- **PUBLISHED BY:** BANDAI
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** CHOANIKI

09 An arcade/puzzle title, which is enchanting once you progress through the first few, rather tricky levels. The main aim of the game is to guide the falling raindrops to the seed of a flower through a maze by moving the platforms. Once the flower has blossomed, the bird flies down to feed and it's time to move on to the next level. As levels become more difficult, enemies such as snails will gobble up the water, thus making your life extremely difficult. Fail to complete a level within the time limit and the game is over. The boxed version comes with a small hardback book that features drawings and text from the game's intro, making it collectable.

SD GUNDAM OPERATION UC

- **RELEASED:** 2002
- **PUBLISHED BY:** BANDAI
- **CREATED BY:** IN-HOUSE
- **BY THE SAME DEVELOPER:** HUNTER X HUNTER

10 One of the few *Gundam* titles that isn't impossible to play due to the language barrier, *Operation UC* is a scrolling shooter featuring lots of huge robots and gigantic space ships. Your main character has a gun for long-distance combat and a sword for close-up encounters, and the non-stop action constantly keeps you on your toes. Successful battles enable you to level up, although losing a life means starting the whole thing from scratch. It features what looks like a story/adventure mode, a shooting mode of levels played one after another and a versus mode, with one-to-one combat against the computer or a human player.

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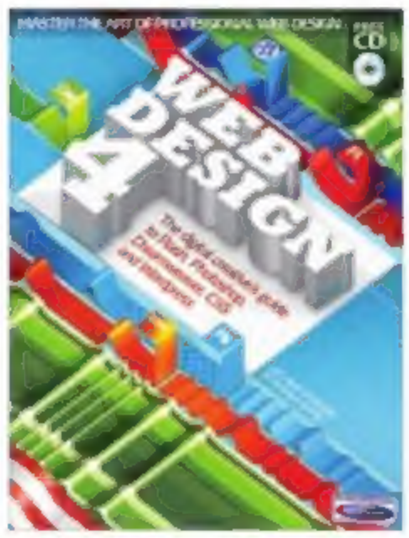

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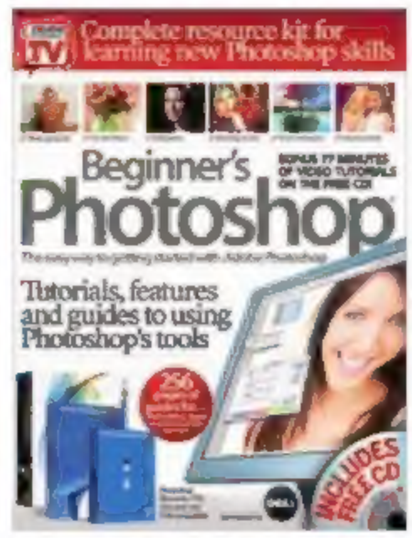

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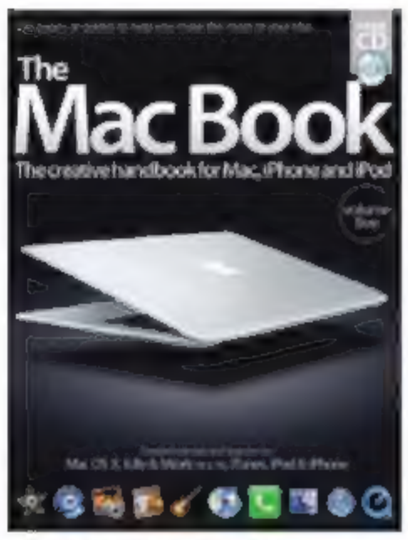

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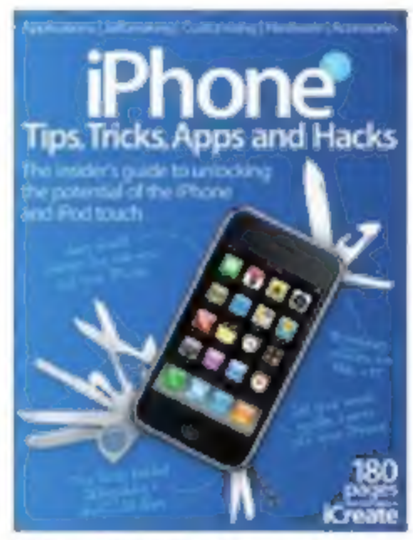

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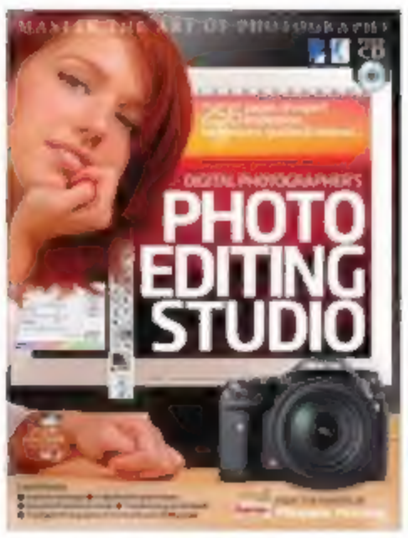

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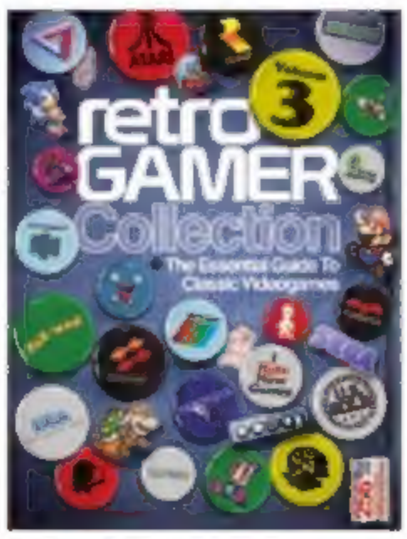

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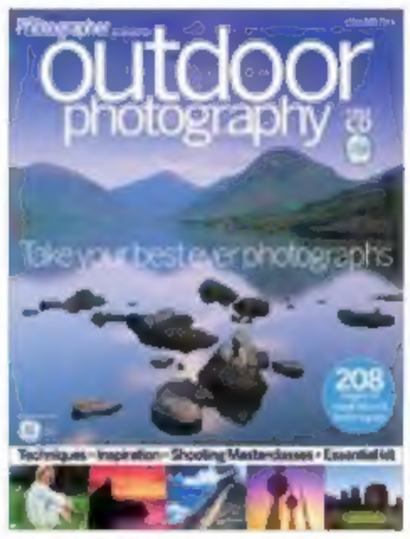

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